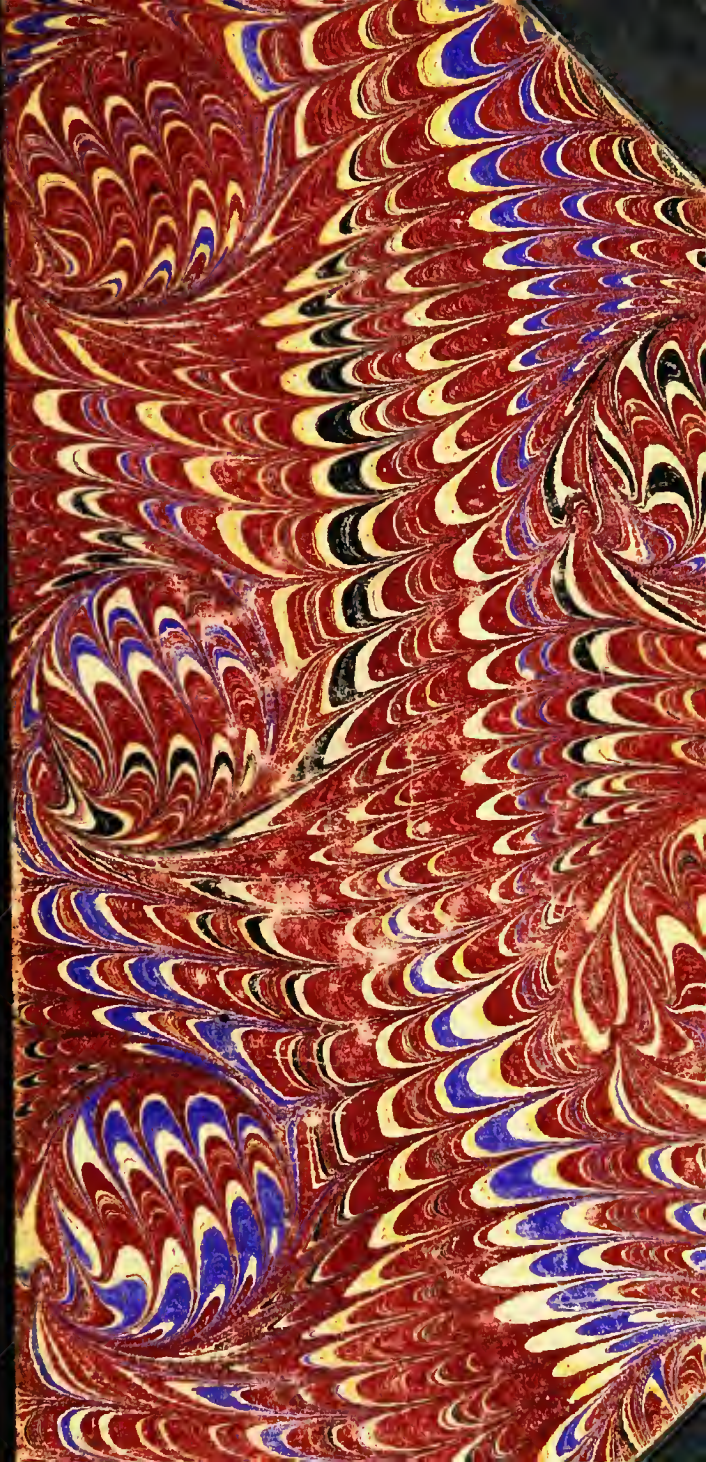

THE PRONUNCIATION

OF THE

GREEK ASPIRATES

BY

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THE GREEK ASPIRATES.

INTRODUCTION.

ERRATA.

P. 12 l. 27, *omit* "and Curtius."
P. 53 l. 14, *for* "ξ" *read* "σ."
P. 62 l. 22, *for* "σφ for στ" *read* "στ for σφ."
P. 79 l. 25, *for* "πυρίφου=πυρίχου" *read* "Πυρρίφου=Πυρρίχου."
P. 98 l. 19, *after* "elisions" *insert* "from various dialects."
P. 103 l. 6, *for* "of the two" *read* "of either of the two."

those who maintain that, whether or not the Greek aspirates were originally genuine aspirates, they had already in the classical period become *spirants*, or at least affricatives. Amongst these we may reckon Arendt, Brücke, Ebel, Telfy, Papademetrakopoulos, Raumer, Roscher, and Rumpelt.

In this small treatise I purpose to set forth concisely the various arguments of different authorities, and to attempt to estimate from the evidence thus collected the possibility of drawing conclusions of a more or less certain nature.

THE GREEK ASPIRATES.

INTRODUCTION.

In a former treatise on the Pronunciation of Greek I did not consider that of the aspirates; in the following pages I propose to discuss the latter within the bounds of a limited scope.

The authorities on the question of the pronunciation of the Greek aspirates may be roughly divided into two classes. First, we have those who support the theory that the Greek aspirates were pronounced as the Indian aspirates, that is to say, were *genuine aspirates*, even in the classical period of the Greek language. To this class belong Brugmann, G. Curtius the great champions of the Erasmian pronunciation, Blass, Meisterhans, G. Meyer, and many others. Secondly, there are those who maintain that, whether or not the Greek aspirates were originally genuine aspirates, they had already in the classical period become *spirants*, or at least affricatives. Amongst these we may reckon Arendt, Brücke, Ebel, Telfy, Papademetrakopoulos, Raumer, Roscher, and Rumpelt.

In this small treatise I purpose to set forth concisely the various arguments of different authorities, and to attempt to estimate from the evidence thus collected the possibility of drawing conclusions of a more or less certain nature.

With this intention I would at the outset disclaim the bias of any foregone conclusion, and maintain that I have endeavoured to collate evidence with strict impartiality.

As regards the estimation of conclusions to be drawn from such evidence, I can only offer my suggestions with the greatest deference to the authority of the many learned scholars who have given their opinion on the subject under discussion.

The question of the pronunciation of the Greek aspirates treated fully and in detail would suffice to fill a volume of some size; here, therefore, I have limited myself to the consideration in detail of a part only of the material at my disposal. In choosing from the latter I have preferred to select for especial investigation the internal evidence supplied by Greek, as I consider it is from this source that we can draw the most satisfactory conclusions. The fact alone that, in dealing with internal evidence, we are not so dependent on reasoning from analogy, as we are when treating of the external evidence to be derived from other sources, enables us to base our arguments on more certain ground.

The method on which I have proceeded has been to investigate what degree of continuity is traceable in the successive periods of the language.

I would claim to have especially elaborated that part which bears on the interpretation of the ancient grammarians, as also to have worked out more fully than has been done before the history of the interchange of letters, and the evolution of the phonetic laws, as illustrated by modern Greek.

Although the investigation of Greek evidence thus constitutes the main substance of this inquiry, I have prefaced this by a short inquiry into the Indo-German sounds which the Greek aspirates are held to represent.

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Brücke.—*Grundzüge d. Physiologie.* 1876.

Psichari.—*Mém. de la Soc. Ling. de Paris,* vi. p. 304.

Papademetrakopoulos.—Βάσανος τῶν περὶ τῆς ἑλλην. προφορᾶς . . . . 1889.

C. Foy.—*Lautsystem d. griech. Vulgarsprache.*

M. Deffner.—*Zakonische Gram.*

W. Prellwitz.—*Etymol. Wörterbuch der griech. Sprache,* 1892, and many others.

ANALYSIS OF CHAPTERS I. AND II.

Chap. I. GENERAL CONSIDERATIONS.

GENERAL CONSIDERATIONS.

- Nature of the change
  - Have we a parallel in any other language?
    - If we suppose an intermediate stage we have a parallel in German.
    - if the change was effected directly, we know of no parallel in any one language, but can compare the transition of
      - Indo-German aspirated tenues into German surd spirants
      - and
      - Indo-German aspirated medial into Latin *h* and, perhaps, *f*.
- Period at which it may have taken place.
  - Different opinions
    - as to its completion
      - not in first centuries A.D. (Curtius, Blass, &c.).
      - in Classical period (including Homeric) (Arendt, Papademetrakopoulos).
    - as to its prelude
      - Boeotian θ and ϕ spirants in fifth century B.C. (Ahrens, Meister, Zacher).
      - Laconian and Cretan θ also early spirant (Ahrens, Meister, Brugmann).
      - perhaps in the ancient dialects (Blass).
  - Various Landmarks.
    - Sextus Empiricus, second century A.D., places them with ἡμίφωνα — may mean that they were already spirants in his time.
    - Priscian about 500 A.D. — difficult to distinguish between ϕ and *f*
    - Byz. Schol. of Dion. Thrax between 500 and 700 A.D. — describes a spirantic pronoun (Blass).
- Manner in which it may have been effected
  - by means of a Transitional Stage
    - Direct transition (Arendt).

Chap. II. Affricative Theory.

- Explanation of
  - according to Raumer and Roscher
  - according to G. Meyer.
- Application of
  - to the Classical Period (Raumer and Roscher).
  - to no definite period (G. Meyer).
- Arguments *pro*
  - such writings as: ὄκχος, Σαπφώ.
  - θ, ϕ, χ, sometimes count as double letters in metre.
- Arguments *con.*
  - such writings as ὄκχος, &c., possibly due to poetic licence for the sake of the metre.
  - θ, ϕ, χ, generally single letters in metre.
  - the grammarians never call these letters διπλᾶ.
  - impossible to pronounce $\phi\theta$, $\chi\theta$ as consecutive affricatives.
- Double homogeneous Aspirate.
  - difficult to explain according to aspiratic theory.
  - shows last stage in development of spirant.

CHAPTER I.

GENERAL CONSIDERATIONS.

ACCORDING to the generally accepted theory $\chi\ \phi\ \theta$ were true surd aspirates, *i.e.* tenues + breathing in the classical period of Greek literature, remained such down to the first centuries of the Christian era, and then gradually became surd spirants, such as we find them in the present language (either by passing through the intermediate step of "affricatae," or without passing through any such transitional stage). Thus a great change must have taken place in the sound of these letters, and it may justly be asked whether a change of such a nature can be paralleled from any other language, as having taken place within somewhat the same compass of time. On investigation, if we suppose an intermediate stage of affricatae, we find a parallel exists in German in those words where the Modern German spirants and affricatae which were caused by the consonantal change in High-German, have developed out of primitive German tenues, apparently by the following process:

tenues : aspirates : affricatae : spirants

(*cf.* Paul, *Grundriss d. germ. Philog.* p. 294):
and the different steps can, in many cases, be illustrated by examples from existent dialects, thus for this change at the beginning of words we have:

	Goth. (or N. Franc.)	M. Franc.	Ordinary Germ.
	punt	p'unt	pfund or fund
and	Franc.	Ord. Germ.	
	kann	k'ann	—— Alem. Xann
	N. Franc.		Ord. Germ.
	toe	——	zu (= tzu)

and in the interior of words:

Goth. hilpan	O.G. helpfan	Mod. Germ. helfen
Goth. vitan	O.G. wizzan	Mod. Germ. wissen
Goth. vakan	O.G. wahhen	Mod. Germ. wachen

(where O.G. *z* is a voiceless spirant and $h = \chi$).

The tenues of (Gothic) primitive German became aspirated (just as the Germans of to-day aspirate their tenues), and would then be parallel to the Greek χ, ϕ, θ if pronounced originally as aspirates; the affricative stage of the German words can be compared with such writings as ὄκχος, Σαπφώ, and finally the Modern German spirants, *e.g.* helfen, with Modern Greek spirants, *e.g.* φύσις (=fysis). Perhaps one may go further and say the dialectical 'punt' and 'kan,' with persistence of original tenuis, may be compared with Modern Asiatic ἔρκομαι, στοκάζω, which are also taken as instances of the survival of an original tenuis.

It may be objected that this is not a complete parallel, because in German this change is by no means fully accomplished as yet, when initial, for in the dental series it has only gone as far as the affricative *z*, and in the guttural the affricative and spirants are *both* still wanting in ordinary German, and even in the labial series the *pf* is not yet universally spoken as simple *f*.

But then German is, as far as our knowledge of it extends, a much younger language than Greek, as the Gothic we know is

that of the fourth century A.D., so that Greek, of which we know a little from the seventh or sixth century B.C., is about ten centuries older, and, as the change of aspirates into spirants had already begun in the Greek dialects before the Christian era, there has been comparatively a far longer space of time for this change to become complete in Greek.

Indeed in Modern German we see the change in process and as yet far from complete initially, whereas in Modern Greek not only has the change completely come, but it is in some cases going again—that is, the spirants of the middle ages are already undergoing a species of deterioration, if it may be so termed; instead of only just becoming firmly fixed they are under certain conditions disappearing again, as if they had existed already many centuries and were now undergoing certain modifications—thus in the case of two consecutive spirants, the second one is now generally changed into a tenuis—*e.g.* *φθάνω* becomes *φτάνω*.

On the other hand, if we consider with Arendt that the intermediate stage of affricatae need not necessarily have existed, but that the aspirated tenues changed directly into spirants (perhaps too without ever having been spoken in Greek for any length of time as aspirated tenues), we cannot compare this change with a similar change in one and the same language, but only with a change like the possibly direct transition of the Indo-German (pure and) aspirated tenues into German surd spirants, *e.g.*

Skt. phena	O.G. feim
Skt. √tṛi	Goth. þreis

and also that of the Indo-German aspirated mediae into Latin *h*, when initial, and perhaps *f*, for we are not quite sure whether *f* was an affricative or spirant. We think, therefore, that the change

suggested for Greek is paralleled by changes that have and are still taking place in other languages, whether we consider that it was effected directly or by the help of an intermediate stage.

With regard to the *period* by which this change had been completed, opinions also differ widely.

Curtius, Blass, Zacher, and Peile think it was not completed by the first centuries A.D.

Curtius (ii. p. 17) adds "that the Laconians seem to have started it," and Blass (p. 108, Eng. ed.) that "this later pronunciation will not have arisen all at once, it must have needed time to have made its way from the lower to the upper stratum of the people, and to have become general. But its prelude is perhaps already to be found in the ancient Greek dialects." He further concludes that Laconian of fourth and third centuries B.C. had a partly spirantic θ—that "in Cretan as we know it from the Gortynian inscription," the dental aspirate had become a spirant, but ϕ and χ had *not;* and with regard to Boeotian, Lokrian, and Elean he maintains nothing.

Zacher (p. 39) says with regard to the date of the change that "there must have been an approximation to the spirantic pronunciation at an early period, or special characters would not have been invented to represent the aspirates. θ must have led the way as the sign Θ is found in the oldest alphabets, and also it is never represented by *TH.*" He maintains, however, that the spirantic pronunciation did not become general before the third century A.D., that is to say, in the written language, because in the dialects the change must partly have come about much earlier (*e.g.* the Spartan θ).

Meisterhans (*Gram. d. att. Inschr.* § 27 ff.) says that the interchange of tenues with $\chi\,\phi\,\theta$ "excludes the possibility of the latter having been spirants in the classical period." Of ϕ he says that

"a real assimilation with the spirant *f* can be shown after 120 A.D.," and of θ that "the date of its change into a spirant cannot be fixed."

Brugmann (*Grundriss*, i. pp. 365-6) says that "in most dialects, *e.g.* in Ion.-Att., $\chi\,\phi\,\theta$ probably remained real aspirates down to the historic period. It is impossible definitely to fix the dates of their transition into spirants in different localities, as we have no written evidence of a sufficiently conclusive nature to guide us." He proceeds to show that θ became a spirant in Cretan, Laconian, Boeotian, Elean and Locrian at an early period, and that in Boeotian ϕ also became a spirant very early.

G. Meyer (*Gk. Gram.*, pp. 213-214) likewise says that the date of the change cannot be even approximately determined.

Meister (i. p. 260) and Ahrens say θ and ϕ were spirants in the fifth century B.C. in Boeotia, and Meister adds (ii. p. 54) that θ was a spirant in Crete before the fifth century B.C., and in Elis by the time of the Damokrates bronze, which according to Kirchhoff dates from about 300 B.C.

Raumer concludes from Plato, *Cratyl.*, p. 427, that ϕ preceded χ and θ in becoming a spirant, and was already one in Plato's time.

Brücke (*Grundz.*, pp. 127 &c.) maintains that in the combinations of aspirates, $\chi\,\phi\,\theta$ must always have been spirants, and probably also in all other cases, or else perhaps "affricatae." "It is doubtful," he says, "whether even in the very earliest ages of Greek speech and writing, the Greek aspirates were ever pronounced as tenues with a breathing appended. The possibility of Greek aspirates having once been tenues + *h* cannot be denied, but inscriptions, change of tenuis into aspirate before the spiritus asper, &c., seem to give no support to this idea."

Arendt supposes χ φ θ to have always been spirants in Greek.

Psichari (*Mém. de la Soc. de Ling.*, vi. p. 315) considers that χ φ θ were aspirates in classical times, and as regards the date of their change, he says: "Si l'on parvient à établir la date du premier ν qui tombe devant χ φ θ, on aura la date exacte du passage de l'aspirée à la spirante."

Papademetrakopoulos (p. 621) argues that χ φ θ were already spirants in the classical period, but allows that they may have been aspirates in the earliest stage of the language, that is, in the pre-Homeric times.

We have indeed a few landmarks which indicate the time by which χ φ θ had for certain already become spirants, but they are not many and do not help towards proving when χ φ θ began to be spirants; they are as follows:—

(1) They were spirants by 700 (?) A.D., as shown by the description of them given by the Scholiast on Dion. Thrax.

(2) Priscian, 520 A.D., finds it difficult to distinguish between Latin *f* and φ, and describes the latter as a labial spirant.

(3) Sextus Empir., second century A.D., places them with *ἡμίφωνα*, which may mean that they were already spirants in his time.

Thus, roughly speaking, χ φ θ are unanimously considered to have been spirants from the third century A.D. onwards, and what remains to be examined is what they were before that time.

As to the *manner* in which the transition from aspirated tenues to spirants was effected, some, like Arendt and Curtius, think that the Skt. sonant aspirates were in Greek immediately changed into surd aspirates, and then there was a direct transition from them to spirants, though they differ as to the time when the second half of this change took place, for Arendt

thinks that the surd aspirates probably never really obtained in Greek at all, whereas Curtius thinks they were spoken down to the first centuries A.D.

Others, like Raumer, Roscher, and G. Meyer, think that in becoming spirants they passed through the transitional stage of "affricatae," and further, the two former uphold the theory of $\chi\,\phi\,\theta$ having been real affricatae in the classical period.

This theory, which may be called the affricative, we will now proceed to discuss.

CHAPTER II.

AFFRICATIVE THEORY.

THE manner of the development of spirants from aspirates through the stage of affricatae has been differently conceived by Raumer and G. Meyer.

Raumer thinks that, first, the breathing of the aspirate became a spirant homogeneous to the tenuis, *i.e.* $t+h$ became $t+th$, and then, secondly, the spirant crowded out the tenuis, *i.e.* $t+th$ became "th":

e.g. ὄφις = ὄπφις = ὄφις (op + his = opfis = ofis).

G. Meyer assumes the same first step, but the second one was, he says, that the tenuis became assimilated to the spirant, *i.e.* $t+th$ became $th+th$, and then sometimes there was a third step by which the double spirant became single.

Βάχος = Βάκχος = Βάχχος and sometimes Βάχος.
bak + hos = bak + chos = Bachchos or Bachos.

G. Meyer does not fix any definite period during which the pronunciation of $\chi\,\phi\,\theta$ as affricatae prevailed, whereas Raumer and Roscher think it was in use during the classical period. Blass thinks that, even if it did exist partially, it was not universal, but yet it will be as well shortly to review the arguments adduced in favour of it and those against it; the latter being in our opinion quite sufficient to condemn the theory.

The chief arguments for it are the words in which $\kappa\chi$, $\tau\theta$, $\pi\phi$ are evidently written for χ, θ, ϕ; such are *ἰακχέω*, *ἰακχή* in the tragedians, from $\sqrt{\text{ἰαχ}}$, and *Βάκχος* and *Ἴακχος*; also *ὄκχος* and *ὀκχέω* found in the lyric poets. *Σαπφώ* may perhaps be derived from *σοφός*; from $\sqrt{\text{dhē}}$ we have correlative forms, such as *τιθήνη* and *τίτθη*, *τιτθεύω*, &c. Now these forms with $\kappa\chi$ for χ and $\pi\phi$ for ϕ (*e.g.* *σκύπφος* for *σκύφος*, Hes.) are all poetical, and so written for the sake of the metre; they are not the forms of ordinary use. It is impossible therefore to say whether these words were ever universally so pronounced or whether this orthography was merely a poetic licence, but most probably it was the latter, as this spelling is confined to a very few words. On an inscription we have the isolated form *ἀνατετθειμένοις*, which may be another example in favour of this theory, or may very likely only be a misspelling.

The second argument is that $\chi\,\phi\,\theta$ sometimes have the force of double letters in metre, and cause the lengthening of the preceding syllable: thus we have *φιλοσοφον* in Aristoph. *Eccl.* 571, *βρῶχον* in Theog., *ὄφις* in *Iliad* and Hipponax, generally *πῖφαυσκειν* in Homer (both *ῐ* and *ῑ* are Indo-Germ.), and *κεκρῦφαλον* in Homer, but *κεκρῡφαλον* in classical Greek. These exceptions, however, are very few and do not occur in the tragedians, and may rightly be regarded as poetic licences, seeing

that the general rule which holds good for all the poets is that $\chi\,\phi\,\theta$ are treated as single letters. This consideration alone seems sufficient to refute the theory of $\chi\,\phi\,\theta$ being affricatae (*v.* Blass, p. 103).

Similarly it seems unreasonable to suppose that the grammarians would not have called them διπλᾶ if they were affricatae; they could not possibly have classed them with the ἁπλᾶ γράμματα.

This theory does not commend itself in any way, and it cannot be consistently maintained, for when the combinations of aspirates come under consideration, it is found that it would be impossible to pronounce two affricatae consecutively (*e.g.* in χθές), and accordingly in these cases we are to suppose that the sound of the tenues was lost, and the $\phi\theta$ or $\chi\theta$ were pronounced as two simple spirants.

Before we pass on, we must look more closely into examples, already referred to, of two homogeneous aspirates being written instead of a tenuis and an aspirate, *e.g.* Βάχχος for Βάκχος.

G. Meyer considers that writings like Βάχχος show complete assimilation of the explosive κ to the following χ, and takes them as indicative of the last stage in the development of the Greek aspirates, that is, of their definite conversion into spirants, and that seems the only really plausible manner of explaining them. It might perhaps be argued that in these cases, as in those of the aspiration of a non-homogeneous tenuis to a following aspirate, the assimilation was merely one "of written letters and not of spoken sounds," but this seems very improbable, especially as we further have instances of a single χ instead of the double ones or tenuis and aspirate. Perhaps it would be as well here to enumerate the examples now extant of this assimilation.

$\chi\chi$ for $\kappa\chi$ we have from—

Attica ἐχ Χαλχίδος of 445 B.C. *C.I.A. Sup.* 27*a* 5, 17.

Ἰάχχῳ of third century B.C. (?) *C.I.A.* ii. 1592.

Βάχχιος *C.I.A.* ii. 1329.

Boeotia Βαχχυλίδας, *c.* 430 B.C. *I.G.A.* 157 ii. 14.

Corcyra Βαχχιδᾶν *C.I.G.* 1850.

Tenos Βάχχος, second century A.D. Ross. *Inscr. Ined.* 104, 3.

also seven times Βάχχος in Wescher and Foucart.

And for *single* χ for $\kappa\chi$—

Βάχιος, Βαχιάδα, Βάχις, on a Delph. inscr. (v. *Bull. Corr. hell.* v. 429).

Of $\theta\theta$ for $\tau\theta$ we have from—

Attica κάθθανε (= κατ(ε)θανε) of fourth century B.C. *C.I.A.* 2719, 5.

Mitylene κάθθεσαν. *C.I.G.* 2169.

Methymna Κλεοθθίς (= Κλεοτθίς). *C.I.G.* 2211*b*.

Tanagra Γοθθίδας. *I.G.A.* 157.

twice on very old Corcyrean inscr. and coin Ἄραθθος, which Strabo vii. 325 and Pliny write Ἄρατθος.

from Crete ἰθθᾶντι &c., συνεθθᾷ.

Of $\phi\phi$ for $\pi\phi$ we have from—

Mitylene on inscr. and coin Σαφφώ. *C.I.G.* 1211.

Ithaca Σάφφου, *ib.* 1927.

Ἄφφειν, *ib.* 3167 (*cf.* Ἄπφειν, *ib.* 3278, 1), Ἄφφιον and Ἀφφη, *passim*, for Ἄπφη.

also single ϕ for $\pi\phi$ on a vase Σαφώ, *ib.* 7759.

As these instances of double and single aspirates are deviations from the correct spelling, they must be in all probability phonetic spellings. If this be allowed, it follows either that the Greeks sometimes spoke two consecutive homogeneous aspi-

ANALYSIS OF CHAPTERS III. AND IV.

ETYMOLOGY AND ANALOGY TO SANSKRIT.

Chap. III.

Indo-Germanic Origin of the Greek Aspirates.

- *θ, φ, χ* regularly correspond to: *dh, bh, gh.*
  - change from hard into soft aspirates. | according to Curtius illustrates ease of pronunciation. | Paul's caution.
  - their pronunciation
    - Aspirated tenues (Brugmann, Curtius, &c.).
    - double change into surd spirants effected at once (Arendt).
    - probably spirants, or *affricatae*, from the first (Brücke).
- occasionally to: *th, ph, kh*
  - where there is a surd Aspirate in both Indic and Greek.
  - where the Indic has an Aspirate and the Greek a tenuis.
  - where there are double forms in Greek and it is uncertain which are the prior | close union of the two factors in Greek Aspirates. | original Aspirate never, except in Asiatic dialects, superseded by tenuis.
- possibly in isolated instances to spirants
- two consecutive syllables may not begin with an Aspirate
  - reduplication of Perfect in Sanskrit and Greek.
  - exceptions
    - Sanskrit compounds.
    - Old Attic words.

Chap. IV.

Analogy of the Sanskrit Phonetic Laws.

- a root may not begin and end with an Aspirate in Sanskrit | the same rule generally observed in Greek.
- combinations of Aspirates unknown in Sanskrit
  - *pro Spir.*
    - in Greek we have the groups *φθ, χθ*
    - and the Aspirate of a root retained before that of a termination.
  - *pro Aspir.* | the first Aspirate in *φθ, χθ*, may not have been fully pronounced.

rates (a combination which most authorities consider very difficult, or even impossible, to pronounce), or the aspirates had already become spirants, and the assimilation of the tenuis to the following spirant was a natural consequence, because it conduced to the ease of pronunciation. If this is the correct explanation, χ and θ, if not φ, must have become spirants in Attica as well as in various dialects by the fifth century B.C.

In the two forms δεδόκχθαι from Samos (*v.* Cauer, *Syll.* 134, 26) and ἐκχθέματα (*Bull. de Corr. hell.* vi. p. 262) we have a curious grouping of consonants which the supporters of the affricative theory take as a confirmation of the same. Others, however, seem with more reason to consider that we have here only cases of confused spelling, such as is also seen in ἔξς, Βυσζάντιοι (Blass, p. 117). This latter explanation is probably also the best to apply to the writings μετηλλακχότες Alabanda (*Bull. de Corr. hell.* x. 302, l. 39), συνδιαπεφύλακχεν Mylasa (*ib.* v. 102), εἰσαγειωκχότα thrice (*ib.* xii. 84 f.) from Stratonikeia, and the converse writing μετηλλαχκότος from Pergamos (*Inschr. v. Pergamos*, Berlin, 1890, No. 225, l. 16); or we might attribute them to uncertainty as to the exact form of the perfect termination.

CHAPTER III.

ETYMOLOGY.

WE will first review the relation of the Greek aspirates to the Indo-German, and point out briefly the etymological relations between them as demonstrated by Brugmann, G. Curtius, and others.

We learn from them that $\chi\,\phi\,\theta$ regularly represent Indo-German *gh, bh, dh* respectively, and that, originally at any rate, the Greek aspirates probably had the force of *k, p, t* with an appended breathing. Curtius further proceeds to show (*v.* ii. p. 17 ff.) that "though at first sight it seems that there has really been in this transition from *gh* &c. to *kh* &c. rather a strengthening than a weakening, and that it therefore seems to be an exception to the general tendency of languages" (which is one of the objections Roscher puts forward in his essay), yet that this change from soft into hard aspirates has now been shown to be one "which conduced decidedly to ease" of pronunciation, and does not therefore violate the general law of the development of languages. In confirmation of this he introduces and explains Arendt's theory (that the change consisted in a kind of assimilation of the first to the second element), and refers to Brücke and Sievers as having clearly shown that though the soft aspirates were, and still are, pronounced in the Indian languages, yet they are sounds very difficult to make. He further adduces the parallel to this hardening of the aspirates discovered by Ascoli in the language of the Gipsies.

That the hard aspirates are easier to pronounce than the soft, any one can readily test for himself by pronouncing "shep-herd" and "ab-hor" successively and without pausing between the mute and the "*h*."

It must be noted here that Curtius seems to attribute this change from sonant into surd aspirates primarily to a desire for ease of pronunciation, whereas we must not lose sight of the caution gvien by Paul (*Princ. of Hist. of Lang.* p. 47) that "the consideration of convenience in each production of sound

affords in every case only a very subordinate and secondary cause."

If then χ φ θ were, at any rate originally, a tenuis with a breathing added, they must have sounded much like the German tenues, only with the *h*-sound perhaps more distinct; for it is well known that the Germans always aspirate the tenues preceding a vowel and say, for instance, T-haube, and not Taube.

Roscher is of a different opinion, and considers it to be far from probable that the sonant aspirates should in so many words have been changed into surd aspirates, if these latter sounded like the Mod.-Germ. tenues.

Arendt says, "it is unnecessary to assume that aspirated tenues were really spoken for any length of time by the classic nations," and gives as his belief "that the double phonetic change, which transformed the sonant aspirates into surd spirants took place all at once."

Brücke, while admitting the possibility of χ φ θ having at one time been surd aspirates in Greek, advocates the probability of their having been spirants, or at least affricatae, from the very beginning. Brugmann's and Curtius' theory of the pronunciation of the letters is the one most generally received. If we now return to the question as to which Idg. sounds χ φ θ represent, we find they regularly represent the Idg. sonant aspirates *gh*, *bh*, and *dh* respectively.

Sometimes, too, they represent an Idg. *kh*, *ph*, and *th*, or a *gh*, and this especially in those words where the surd aspirate of the Greek is flanked by one in Indic, as in κόγχος = Ind. çaṅkhas (*v.* Brugm. *Grd.* i. p. 406 ff.).

In other words where, though Indic has a tenuis aspirate, Greek and other languages have a pure tenuis, it is a point of

discussion whether the Indic tenuis aspirate is here due to an original Indo-German tenuis aspirate, or whether it has been developed independently from a tenuis after the division of languages. If, according to the former view, all Indic tenues aspirates are to be traced back to Indo-Germ. originals, then we have to suppose that in Greek, as well as in other languages, the aspirate component of the Indo-German sound has often been lost.

Again, if Bezzenberger and G. Meyer are correct in maintaining the priority of the aspirate in those Greek words where χ and κ, ϕ and π, θ and τ appear interchangeably after σ, then there are more instances than formerly admitted of the correspondence of Greek and Indic surd aspirates (*v.* Bzzb. *Btr.* vii. 63 ff.).

In many cases, too, it is still doubtful whether the aspirate or tenuis is the prior, and also to what Indo-Germ. root they are to be referred.

We may here draw attention to the fact that in no case where the form with an aspirate is acknowledged to be the prior, has this aspirate been permanently superseded by the by-form with a tenuis; the two forms or the different words from the same root but spelt, some with aspirates, some with tenues, have lived on side by side to this day.

Now the fact of an original χ ϕ θ never becoming a tenuis until quite modern times seems to argue a close union between the two component parts of a Greek aspirate; they must have been pretty firmly welded into one, for otherwise in spite of the tendency to aspiration, we might expect to find a few words in which the original aspirate had become and remained a tenuis seeing that they were so often interchanged. Even in modern Greek all the ancient aspirates are still intact; in certain

dialects, *e.g.* those of parts of Asia Minor, κ, π, τ are spoken in place of χ φ θ, which seems to be a relic of the ancient Asiatic preference for the tenues, but in Greece proper χ φ θ are still spoken and written where the ancient Greek had a χ φ or θ, though in the really popular language the second aspirate in the groups of two aspirates and also θ or χ after σ is now pronounced as tenuis. But that this modern tenuis has in these cases not arisen from and survived an original aspirate, while the form with the aspirate died away, is proved by the writings of the middle ages (when χ φ θ were spirants) in which forms with tenues and spirants occur side by side—oftener perhaps with the latter—thus ἔφθασε and ἔφτασε, ἀσθενᾶ and δροσιστῆ, σχῆμα (12 cent.) and σκολή, ἐθαυμάστην and ἐπιάσθηκαν, and so on.

This sturdy persistence of χ φ θ in the ancient, as well as in the modern language, appears to point to a complete amalgamation of the two component parts of the Greek aspirate.

Curtius explains this by saying that "after the originally soft explosive had become hardened, not without the influence of the breathing, it would have been very surprising to find these hardened consonants again discarding this breathing."

This sounds quite right in theory but does not seem to tally with facts as given by inscriptions, which yield us as many examples of tenues written for aspirates as they do of the opposite phenomenon. This causes us to ask, Why if these "hardened aspirates" could frequently discard their breathing even in Attica (*e.g.* καλκοῦν, κιτών, *cf.* Meisterhans, § 38), without apparently any rhyme or reason for so doing, should it be surprising if in some cases the form with the tenuis had won the day and driven the aspirate entirely from the field? Before leaving this part of the subject, it will be as well to

discuss a few isolated words, in which the Greek aspirates irregularly correspond to Sanskrit spirants, and where the collateral Latin words have a spirant or breathing, so that, though the pure medial reappears in some of the kindred languages, we find the Greek $\chi\,\phi\,\theta$ flanked on either side by a spirant, and this induces the belief that they also may have been spirants, if only under certain conditions.

Taking θ first, we have the words $\chi\theta\acute{\omega}\nu$, $\chi\theta\alpha\mu\alpha\lambda\acute{o}\varsigma$, with Skt. *xam* (*sic* Grassmann, p. 95) or *ksham* (Curt. p. 243), Lat. *humi*, Zd. *zem-*, Slav. and Lith. *zem-*. Thus for this word we have spirants in all the kindred languages, and the Gk. $\chi\theta$, Skt. *x* or *ksh*, Lat. *h*, Zd., Slav. and Lith. *z* all correspond, and are derived one and all from Idg. $\sqrt{zhsem}$ (*v.* Prellwitz, *s.v.*) or Idg. $\sqrt{gzhom}$- (*v.* Brugm. *Grd.* i. p. 409), and either of these roots contains a spirant, so that for these Greek words the spirant is found not only in the sister-languages but also in the mother-language.

Grassmann and Curtius explain it thus: the $\sqrt{ghama}$ (from which $\chi\acute{\alpha}\mu\alpha\iota$) first became "ghjam," and then by dentalism and assimilation "ghdham," and from this come $\chi\theta o\nu$-, $\chi\theta\alpha\mu$-, and perhaps also the Sanskrit *ksham*.

They give the same explanation for $\chi\theta\acute{\varepsilon}\varsigma$, Skt. *hjas*, Lat. *heri*, from "ghjes" as primary form: the development of this word would thus be "ghjes—khjes—khthjes—khthes = $\chi\theta\acute{\varepsilon}\varsigma$.

Yet in both these words the Greek θ corresponds to an Indo-Germ. spirant, *z* or *j*, and in the Skt. and Lat. equivalents we also have spirants *j* or *sh* and *h* respectively, and for $\chi\theta\acute{\omega}\nu$ the same spirant reappears in other languages, which makes it seem probable that, if only in this close connection with χ, θ may have been a spirant. Similarly for χ, we often find it corresponding to Skt. *h*, and Lat. *h*, as in $\chi\iota\acute{\omega}\nu$, Skt. *himam*, Lat. *hiems*, $\check{\varepsilon}\chi\omega$, Skt. *sakas*, Lat. *veho*. This Skt. and Lat. *h* generally

represent, it is true, an original "gh," whose "g" reappears in Gothic, &c., thus ἔχω is probably from an Idg. √*segho* (*v.* Brugm. *Grd.* i. 422)—though Prellwitz derives it from √*sezho*—but the fact remains that in Skt. we have a guttural spirant *h*, and in Lat. a spirant or breathing "h," and, as there is some possibility of χ having been a spirant, these cases make such a supposition probable.

In the word βραχμᾶν for Skt. *brahma* (*v.* Strabo, xv. 1, 59, Diod. xvii. 102, &c.) the medial χ represents the Skt. spirant "h," which could perhaps justify the conclusion that by these historians' time, that is, by the end of the pre-Christian era, χ had already become a spirant. For if χ had still been a tenuis-aspirate, *kh*, the Skt. spirant "h" would have probably been altogether omitted in the Greek rendering of the word, as βραμᾶνες would have sounded more similar to the Sanskrit original than βρακhμᾶνες.

CHAPTER IV.

THE ANALOGY OF SANSKRIT.

Amongst several reasons which Curtius instances as apparent proof that χ φ θ were real aspirates is "the movable nature of the breathing which (*a*) is easily separated from the explosive element, and leaves the explosive element behind, *e.g.* πέφυκα for φέφυκα, but (*b*) just as easily unites with another explosive, and though its position varies, does not do away with the feeling that forms like θρέψω and τρέφω belong to each other."

Of these he proceeds to say: "I doubt whether such phenomena occur in any language with recognised spirants, whereas

the first two" (those we have quoted) "have exact analogies in Sanskrit."

We do not think that the analogy in question can be considered at all in the value of proof, but at the same time it seems worth statement and investigation, merely in so far as it is an argument from analogy and one that has been supported by such high authority. With this premiss we will now compare the Sanskrit and Greek phonetic laws.

An important phonetic law in Sanskrit is, that two consecutive syllables of a word should not begin with an aspirate, and, to avoid such an occurrence, in the reduplication of verbs for instance, the breathing of the first aspirate is dropped and leaves the explosive element behind, *e.g. da-dhami* from $\sqrt{dha}$.

This fact, which speaks strongly for the real aspiratic nature of the letters in question, is also generally observed in Greek, as for instance in the reduplication of verbs, *e.g.* *πεφίληκα*, not *φε-φίληκα*, from *φιλέω*, and *τίθημι* from $\sqrt{\theta\epsilon}$.

The same principle of the movable nature of the breathing is evident in the law, known as Grassmann's, which is common to Sanskrit and Greek, though unknown to Indo-German, and which forbids a root to begin and end with an aspirate. Thus Idg. $\sqrt{bheudh}$ becomes Skt. $\sqrt{budh}$, Gk. $\sqrt{\pi\upsilon\theta}$; compare also Skt. *dhak-* from $\sqrt{dagh}$, Gk. *τριχός* from *θρίξ*, *ἐτάφην* from *θάπτω*, &c.

This process of dissimilation, which makes one aspirate reappear when the other disappears, does not, as Curtius says, do away with the feeling that forms like *θρέψω* and *τρέφω* belong to one another, and certainly argues powerfully for the similarity of pronunciation, at least originally, of *χ φ θ* and the Skt. aspirates. For if *χ φ θ* had from the earliest days of the Greek language been real spirants, we might have expected to find in the reduplication of verbs two consecutive spirants,

as we do in Latin *fefelli* from *fallo*, and Gothic *hvai-hvôp* from *hvôpa*.

Of course it may be objected that the Greek ideas of euphony and kakophony may have differed widely from those of the Latins and Goths, and that they may have found the sound of two consecutive syllables beginning with spirants very disagreeable, and consequeutly replaced the first spirant by a tenuis. However this may be, the fact that in two such important points Greek corresponds with the Sanskrit usage, apparently indicates that *at some time or other* the Greek aspirates were of the same nature as the Indian, but it is not sufficient to prove that they still were so in the classical period of Greek literature, as Curtius says. For supposing that χ φ θ were already spirants at that time, even so these forms of verbs, nouns, &c., had long before that time become stereotyped in the language, and would not have been affected then by any change which was taking place in the pronunciation of single letters, any more than they have been since throughout the many centuries during which χ φ θ have been undoubted spirants—τρέφω and θρέψω are still said.

This rule we have under consideration, namely that aspirates should not stand at the beginning of two consecutive syllables, is not violated in Sanskrit, except in compounds, *e.g. abhi-bhutis*, *ahi-han*, and at first sight it appears to be strictly observed in Greek also, but on closer inspection one finds it is by no means inviolably observed. In old Attic, Meisterhans tells us (*cf. Gram. d. att. Inschft.* § 37) this law "does not seem to have been firmly established," as on inscriptions of the fifth and fourth century B.C. forms are found, such as ἔχει (perhaps by analogy with ἕξω), *C.I.A.* iv. 373; ἐνθαυθοῖ, *ib.* iv. b. 27, φαρθένος and χόλχος, *ib.* iv. b. 373, &c., and sometimes even three consecutive

syllables commence with an aspirate, *e.g.* θυφαιθίδης. And apart from errors on inscriptions, we have regular forms as ἐθάφθην, τεθάφθαι (by the side of ἐτάφην), ἐφάνθην, φάθι, and others.

These exceptions, which are fairly numerous, seem to indicate that the Greek aspirates were already diverging somewhat from the Indian.

Another strict rule in Sanskrit is, that two aspirates should never occur together, but that an aspirate may only stand before a vowel, semivowel, or nasal, and an exception to this rule appears perhaps only in the word *Viṭhṭhala*, which is probably not of Aryan origin. In Greek, on the contrary, this rule is not observed, as there are numerous instances of two aspirates coming together, not only medially, but even initially, *e.g.* ἐχθρός, χθών, φθείρω—such combinations are quite unknown to Sanskrit.

The same dislike to the union of two aspirates in Sanskrit is shown by the rule that "when the final sonant aspirate of a root is followed by a *t*- or *th*- of an ending, the combination is made sonant, and *the aspirate of the final is transferred to the initial of the ending*, *e.g.* √*rundh*+*thas* becomes *not run*dhdh*as*, but *run*ddh*as*," and √*badh*+*ta* becomes *ba*ddh*a* (*cf.* Whitney, *Skt. Gr.* p. 50).

In Greek we have an exactly opposite phenomenon, which is difficult to explain on the assumption that the Greek aspirates had the same phonetic value as the Sanskrit—for here the rule is, that (1) "when a final surd aspirate of a root is followed by a *th* of an ending, both the aspirate of the final and that of the initial of the ending are retained," *e.g.* √γραφ+θηναι = γραφθῆναι; and (2) that "when a final unaspirated surd of a root is followed by a *th* of an ending, the unaspirated surd of the final *is aspirated*, even though it belong to a different class of surds," *e.g.* √δεκ+θῆναι becomes δεχθῆναι, whereas

if θ had the phonetic value of $t+h$ we should have expected $\delta\epsilon\kappa\theta\hat{\eta}\nu\alpha\iota$ to be written.

Thus also, contrary again to Sanskrit usage, when a final surd aspirate of a root is followed by an unaspirated surd of an ending, this aspirate of the final is *not* transferred to the initial of the ending, but is entirely dropped, *e.g.* $\sqrt{\gamma\rho\alpha\phi}+\tau\circ\varsigma$ becomes not $\gamma\rho\alpha\pi\theta\circ\varsigma$, but $\gamma\rho\alpha\pi\tau\acute{\circ}\varsigma$, whereas in Sanskrit $\sqrt{badh}+ta$ becomes *baddha*, not *batta* or *badda*.

This regular aspiration of the explosives before θ is certainly the point which is most difficult to understand, if we accept the aspiratic theory of $\chi\ \phi\ \theta$. Curtius comes to the conclusion that "no definite argument is to be drawn from grouped aspirates," and that Von der Mühll's notion that the assimilation was in these cases only one of written letters, and not of spoken sounds, is deserving of much consideration.

But this grouping of the aspirates is such a distinctive feature in the Greek language, that this summary explanation of it seems hardly conclusive and satisfactory. In dealing with dead languages, writing must, if not wholly, yet largely "be our evidence for the original sound," and the constant, regular recurrence of a peculiar orthography is surely of immense importance in determining the sound of the individual letters. This axiom is one generally accepted, and the arguments for discarding it in this one particular case do not appear weighty enough to justify this being done.

From this assimilation of a tenuis to a following aspirate, which except in four or five instances is uniformly observed, it may be justly inferred, we think, that the tenuis did *not* retain its original sound in this position, but that some distinctly audible change must have taken place in its pronunciation. For if the ϕ or χ in $\phi\theta$, $\chi\theta$ still continued to be spoken as a tenuis,

or was so slightly aspirated that the aspiration was practically inaudible, how is it that the inscriptions, at least the private ones, do not afford numerous instances of exceptions to this artificial orthography $\chi\theta$, $\phi\theta$? The four or five exceptions, such as *ἄπθιτον*, "found on archaic and later monuments," seem hardly worth mentioning, as Blass says (*vide* p. 103), when compared with the countless examples still extant of the omission and misplacing of the spiritus asper, due to its weak sound; so, too, if $\phi\theta$, $\chi\theta$ were practically pronounced as $\pi\theta$, $\kappa\theta$, we ought to have, not only half-a-dozen, but many dozen instances of such miswritings. It appears somewhat incredible that every stone-mason should have a sufficiently critical eye to discern that it would look incorrect, or that he should remember his schooling so well as never to forget that it would be inconsistent with the law of assimilation to write a tenuis before an aspirate, and therefore always carefully wrote two aspirates, even though he pronounced the first of the two exactly, or very nearly, as a tenuis.

In short, that their spelling should have been so consistently inconsistent with their speech, is hard to believe, and if other evidence tends to prove that $\chi\,\phi\,\theta$ were real aspirates, it seems more logical to decide that in these groupings also two aspirates were spoken as well as written, even though it may be quite impossible for an Englishman to pronounce *phth* or *khth*. That it is not an impossible combination to some nations we learn from Sievers (*Lautphysiologie*, p. 96, note), who says that "Die deutschen Mundarten . . . . die doppelte Aspiration vermeiden. Ich bemerke dass aber anderwärts z. B. im Armenischen, diese Abneigung nicht besteht und man wirklich zwei nicht homorgane Aspiraten neben einander spricht."

We have thus no reason for asserting that two consecutive

ANALYSIS OF CHAPTERS V, VI., AND VII.

INTERNAL EVIDENCE OF GREEK.

- INTERNAL EVIDENCE OF GREEK.
  - Chap. V. Testimony of the Grammarians.
    - value of their evidence
      - inaccurate
      - depends a good deal on its date.
    - interpretation
      - of various terms and descriptions
        - ἄφωνα and ἡμίφωνα
          - inaccuracy and variety of definitions paralleled by
          - that of modern grammarians.
        - πνεῦμα as used by Dion. Halic. and Schol. on D. Thrax
          - to be rendered "breath" not "breathing" = spiritus asper.
          - προσθήκη τοῦ πνεύματος, not to be taken literally.
          - μέσα.
        - different descriptions inapplicable to real aspirates
      - of definitions of individual letters.
        - Θ. D. H's. and Schol.'s on D. Thr. defs. can apply to the spirantic theory | *cf.* Walker and Sweet on Eng. *th.*
        - Φ. D. H's. and Arist. Quint.'s defs. applicable to a bi-labial spirant | Schol. on Dion. Thrax seems most unsatisfactory.
        - X. D. H. and A. Q. vague | Schol. on Dion. Thrax describes a spirantic χ.
  - Chap. VI. Testimony of Classical Writers.
    - Aristophanes' Scythian
      - *pro Aspir.* analogy of German and Hungarian
      - *pro Spir.* Spirants of one nation constantly pronounced as homogeneous tenues by another.
    - Plato's πνευματώδη | not definite enough to allow of any conclusion.
  - Chap. VII. Early Orthography.
    - the writing ΠΗ, ΚΗ
      - why abandoned, if it denoted the phonetic value
      - we do not find TH.
    - the writing ΘΗ
      - may denote aspiration.
      - paralleled by insertion of *h* after other letters.
    - χσ, φσ = ξ, ψ
      - *pro Aspir.* κσ, πσ another substitute.
      - *pro Spir.*
        - the Naxian *hs* as substitute for χσ.
        - some races may have heard a softer spirantic element in the first factor | *cf.* German *chs.*

aspirates would have been a combination impossible for the Greeks to pronounce, and the supposition that they did speak two aspirates is more satisfactory than Von der Mühll's suggestion.

And yet if they were both pronounced as aspirates, should we not have more instances of tenues being miswritten for one or both of them, seeing that the interchange of tenuis and aspirate is so very frequent in the case of single letters?

CHAPTER V.

THE GRAMMARIANS.

We now enter upon our especial investigation of the internal evidence of Greek itself, and will begin it by estimating the testimony of the Grammarians as to the nature of $\chi\,\phi\,\theta$. Unfortunately they are not very accurate in their definitions and descriptions of the different letters; some of their explanations can easily be interpreted in different ways to suit different views, and others are obscure and therefore but of little help to us. The only way of getting an insight into their meaning is, we take it, not to quote, or read, a few isolated lines which bear upon the particular letters under discussion, but to read all they say about the letters, which is never very much, and try to catch their spirit and look at the letters from *their* point of view and not our own. We should further take into account the times in which these different grammarians and other writers who mention the subject lived, as the worth of their evidence for the pronunciation of the classical period

depends a good deal on this—and it has not been sufficiently taken into account as yet.

So little is known of the lives of the different authorities that their dates can only be very roughly fixed, but if we do this, we shall find the following to be their chronological order :—

Dionysius Thrax . . .	*fl.* B.C. 80.	
Dionysius Halic. . . .	„ B.C. 30.	
Aristides Quintil. . . .	„ A.D. 100 ?	L. and S.
	„ 3rd cent.	Blass.
Sextus Empiricus . . .	„ A.D. 220.	
Diogenes Laertius . . .	„ A.D. 280 ?	

Only two therefore lived in the pre-Christian era, and that long after the classical period of Greek literature, whilst the others all wrote at a time when $\chi\phi\theta$ were almost undoubtedly spirants. Blass does not seem to take this fact into consideration at all, as he says Aristides Quint. *lived in the third century*, then quotes his words, and immediately adds "*accordingly* $\chi\phi\theta$ were instantaneous and explosive"; "accordingly" here meaning "according to Dionys. Hal. and Aristides Quintil.," and yet these two were separated by an interval of at least one-and-a-half centuries, so that their evidence ought not to be taken as of equal value, and if Aristides Quint. did not live till the third century A.D., $\chi\phi\theta$ had by his time almost certainly become spirants.

The scholiast on Dion. Thrax, whose remarks can profitably be compared with those of Dion. Halic., is of very uncertain date, probably between 500 and 700 A.D.; at any rate of a time when $\chi\phi\theta$ were spirants.

We will now proceed to sift their evidence and see what we gain from it.

Dion. Thrax and Dion. Halic. both reckon χ φ θ among the mutes or *ἄφωνα*, and the latter defines mutes aright as being those *ὅσα οὔτε τὰς τελείας οὔτε τὰς ἡμιτελείας φωνὰς ἔχει καθ' ἑαυτὰ, μεθ' ἑτέρων δὲ ἐκφωνεῖται*, and the *ἡμίφωνα* are those *ὅσα μετὰ μὲν τῶν φωνηέντων κρεῖττον ἐκφέρεται, καθ' ἑαυτὰ δε χεῖρόν τε καὶ οὐκ αὐτοτελῶς*, and to this class, he says, belong among others λ, μ and ν. These liquids are so called because in them there is no complete stoppage of the breath, whereas in χ φ θ, if real aspirates, there would be complete stoppage at first. However, that some uncertainty existed as to the class to which χ φ θ should belong, is shown by the fact that the Stoics (according to Diog. Laert.) did reckon them among the *ἡμίφωνα*. But even if χ φ θ were spirants, they would very likely from force of habit and according to some old-established division of the letters, made perhaps when the old writing ΠΗ and ΚΗ still existed, have been classed with the mutes. That the term *ἄφωνα* was certainly used in a very loose manner is shown by the fact that Dion. Thrax, the only other pre-Christian authority, gives a very different definition of the word from that given by Dion. Halic., and one that is practically of no use for phonetics, for he includes all the letters except the seven vowels under the name *σύμφωνα* and then divides these into *ἡμίφωνα* and *ἄφωνα* according to their being more or less euphonic, thus: *ἄ φ ω ν α δὲ λέγεται ὅτι μᾶλλον τῶν ἄλλων ἐστὶ κακόφωνα, ὥσπερ ἄφωνον λέγομεν τραγῳδὸν τὸν κακόφωνον*, and again, *ἡ μ ί φ ω ν α δὲ λέγεται ὅτι παρὸσον ἧττον τῶν φωνηέντων εὔφωνα καθέστηκεν ἐν τοῖς μυγμοῖς καὶ σιγμοῖς*, about which the Scholiast very justly remarks: *καὶ ἐνταῦθα ἄφωνα λέγεται ὡς κακόφωνα, καὶ οὐκ ὡς τελέως φωνῆς ἐστερημένα.*

And this is our oldest authority, who is often adduced as a

witness for the aspirate pronunciation of $\chi\,\phi\,\theta$ because he places them amongst the *ἄφωνα* or mutes. He certainly reckons them among the *ἄφωνα*, but whether his *ἄφωνα* mean what our "mutes" mean, must remain an open question as long as our knowledge of what he meant by *ἄφωνα* is limited to his definition that I have quoted—in other words, as long as we do not know what sounds he would have called *εὔφωνα* and which *κακόφωνα*.

The evidence of Dion. Thrax is but of very little value to us, therefore, as no argument can be based on premises which are indefinite and not accurately stated.

Aristides Quint. does not define *ἄφωνα* at all.

Another passage which shows the wide sense allowed to the term *ἄφωνα* is Plato, *Theaet.* 203 B, where he says: *τὸ σῖγμα τῶν ἀφώνων ἐστί, ψόφος τις μόνον. . . .* 'that is, he reckons ς among the *ἄφωνα* and calls it "a mere noise" and goes on to say "*b* and most other letters are neither vowel-sounds nor noises. . . . The most distinct, which are the seven-vowels, have a sound only." Brücke says this proves that Plato understood under *ἄφωνα* those letters "in which the sound of the voice was wanting," *i.e.* our consonants. Further, it must be noted that though here he places *σ* among the *ἄφωνα*, he evidently knew of the subdivision *ἡμίφωνα* as we see by referring to *Crat.* 424 C, where he divides the letters into three classes, (1) *φωνήεντα*, (2) *ἄφωνα καὶ ἄφθογγα*, (3) *φωνήεντα μὲν οὔ, οὐ μέντοι γε ἄφθογγα*, 1 (= *ἡμίφωνα*).

But really it is perfectly needless to argue on this point, as the science of phonetics had certainly not by the end of the pre-Christian era attained that accuracy which it has now, and subdivisions of letters into sibilants, fricatives, &c., and the distinction between aspirates and spirants had very likely never

been heard, or thought of, and of the five or six Greek writers who mention any classification only the two, Dion. Hal. and Dion. Thrax, can lay any claim to the name "Grammarian"—the others may have known no more of "phonology" than any ordinary well-educated man or woman,—so that, even if $\chi\,\phi\,\theta$ were spirants in their time and yet they classified them under mutes, it does not appear very astounding. For if a man in 1892 can classify the English spirants *f, v, th* under mutes although they have always been spirants, and never aspirates, in his language, then it is quite comprehensible that a man of B.C. 30, who had by no means the same opportunities of learning the correct phonological name to be applied to the individual letters, should also classify under mutes letters which in his own time were spirants, but had in a former period of the language been aspirates.

And in order to see that English spirants are still classified by some under mutes, we need only turn to the twenty-fifth edition of Adams' *English Language*, pp. 59–61, where we shall find that *f, v, th* are classed with *p, k, t* under the big heading "Mutes," and are called aspirated mutes or aspirates, and this in a book published in 1892.

The Stoics, however, apparently considered $\chi\,\phi\,\theta$ to be *ἡμίφωνα* (Sext. Emp. is uncertain whether to call them *ἄφωνα* or *ἡμίφωνα*), and to show that, even if spirants, they might well have been so called, we can refer to Murray's *English Grammar*, 1853, where *f, v, th* are called "semivowels" (vol. i. p. 35).

The mistake of calling English *th, v, f* "mutes" and "aspirates" does not occur in *all* English grammars of course; Mason and Morris, for instance, call them "spirants" and "continuous consonants" respectively—yet the fact that any grammarians should still call them "mutes" and "aspirates"

shows the direful confusion which still exists as to the true use of these terms.

Supposing then for the sake of the argument that χ φ θ were spirants in the time of Dion. Hal. and the Stoics, we have as exact parallels to their calling them *ἄφωνα* and *ἡμίφωνα* respectively, the case of two English grammarians of this century, who call the English spirants "mutes" and "semivowels" respectively.

Of course this evidence by no means proves, or is intended to prove that χ φ θ in Dion. Hal.'s time were spirants, but it is only adduced to prove that it is utterly futile to try and base any argument as to the specific nature of χ φ θ on the fact of their being called by two grammarians *ἄφωνα* and by other writers not grammarians, either *ἄφωνα* or *ἡμίφωνα*.

We see then that if the word "mutes" is still often used in a loose and improper manner, the term *ἄφωνα* may well have been similarly used in an age when only very rough and large classifications of the letters had been made.

We will now pass on to the examination of Dion. Halic.'s other remarks, and will first take the passages in which the word *πνεῦμα* occurs, to see what he meant by it.

After speaking of the vowels Dion. Halic. says :—

(*a*) p. 75 *τούτων δὴ* (*i.e.* of the vowels) *φωνὴν ἡδίστην ἀποτελεῖ τὰ μακρὰ...ὅτι πολὺν ἠχεῖται χρόνον καὶ τοῦ πνεύματος οὐ κατακόπτει τὸν τόνον.*

(*b*) then on p. 83, *τρία μεν ἐκφωνεῖται ἀπὸ τῶν χειλέων ἄκρων, τὸ π φ β, ὅταν, τοῦ στόματος πιεσθέντος, τὸ προβαλλόμενον ἐκ τῆς ἀρτηρίας πνεῦμα λύσῃ τὸν δεσμὸν αὐτοῦ.*

(*c*) p. 84 : *μία μὲν αὕτη συζυγία τριῶν γραμμάτων ἀφώνων ὁμοίῳ σχήματι λεγομένων, ψιλότητι δὲ καὶ δασύτητι* (*τοῦ πνεύματος*) *διαφερόντων.*

(*d*) *ib.* τρία δὲ ἄλλα λέγεται, τῆς γλώσσης ἄκρῳ τῷ στόματι προσερειδομένης κατὰ τοὺς μετεωροτέρους ὀδόντας, ἔπειθ' ὑ π ὸ τ ο ῦ π ν ε ύ μ α τ ο ς ὑπορραπιζομένης, καὶ τὴν διέξοδον α ὐ τ ῷ περὶ τοὺς ὀδόντας ἀποδιδούσης, τὸ τ καὶ τὸ θ καὶ τὸ δ.....

(*e*) *ib.* τρία δὲ τὰ λοιπὰ τῶν ἀφώνων λέγεται μὲν, τῆς γλώττης ἀνισταμένης κατὰ τὸν οὐρανὸν ἐγγὺς τῆς φάρυγγος, καὶ τῆς ἀρτηρίας ὑπηχούσης τῷ π ν ε ύ μ α τ ι, τὸ κ χ γ. οὐδενὶ ταῦτα διαφέροντα τῷ σχήματι ἀλλήλων, πλὴν ὅτι τὸ μὲν κ ψιλῶς λέγεται, τὸ δὲ χ δασέως, τὸ δὲ γ μετρίως καὶ μεταξὺ τούτων.

(*f*) p. 85, he adds: κράτιστα μὲν οὖν ἐστὶν ὅσα τ ῷ π ν ε ύ μ α τ ι πολλῷ λέγεται· δεύτερα δὲ, ὅσα μ έ σ ῳ (π ν ε ύ μ α τ ι)· κακίω δὲ, ὅσα ψ ι λ ῷ (π ν ε ύ μ α τ ι) ταῦτα μὲν γὰρ τὴν ἑαυτῶν δύναμιν ἔχει μόνην· τὰ δὲ δασέα καὶ τ ὴ ν τ ο ῦ π ν ε ύ μ α τ ο ς π ρ ο σ θ ή κ η ν, ὡς ἐγγὺς τοῦ τελειότατα εἶναι.

If these passages are read through one after the other with unbiased mind, the best and only really possible translation of πνεῦμα will, we think, be admitted to be "breath" or "stream of air," and as, when the whole description of the letters is read connectedly, it is quite clear that the writer uses the word πνεῦμα throughout in one and the same sense, it should also be so translated in every case. In extracts (*a*), (*b*), (*d*) and (*e*) it is self-evident that it means "breath" or "stream of air," then applying this same translation to extract (*c*) we get that "the first set of three mutes which are pronounced with the same vocal organ, are distinguished from each other by the weakness or strength of *the stream of air* [or breath]" used in pronouncing them and NOT that they are distinguished by the weakness or strength of the "breathing," with "breathing" taken to mean the "spiritus lenis" or "fortis" respectively; and similarly extract

(*f*) must be translated :—"The strongest are those which are pronounced with a *strong stream of air* [or much "breath"], the second, those pronounced with a moderate one and the weakest those pronounced with a *scanty amount of breath* [weak one]; for these last letters have only their own force, whereas the δασέα have the help *of the stream of air* [or "the addition of the breath"] and thus come near to being the most perfect letters."

And when he says they are near being the most perfect letters he is evidently comparing them with the vowels, and the reason he has given for their being such is because "they do not check the current of the breath [or "interrupt the sound of the voice"] or stream of air." Here certainly no one would wish to translate "τοῦ πνεύματος" as "a breathing *i.e.* an *h*," for how could it be said of the long vowels that "they have the pleasantest sound because they do not check, or break off, the sound of the '*h*'"? Then why in the case of the letters χ φ θ, which Dion. is evidently mentally comparing with the vowels and thinking they are very nearly as perfect as the vowels and only a little inferior because they have προσθήκην τοῦ πνεύματος whereas the vowels are altogether πνεῦμα,—why in this obvious comparison should the crucial word on which the whole comparison is based be differently translated in the two branches of the comparison? Why in the second clause should πνεῦμα mean a "breathing *i.e.* an *h*" when it cannot possibly bear the same meaning in the first clause? And, as a side-question, which are generally considered to be more similar in nature to vowels, aspirated mutes or spirants? Evidently spirants, if they "according to the ancient nomenclature ought to be called ἡμίφωνα" (*cf.* Blass, p. 100).

From this consistent and impartial translation we get a description of the ἄφωνα which, as Blass also finds, certainly

suits the modern pronunciation of π β φ &c., even though it may not prove it, but neither does it prove that χ φ θ were real aspirates.

Dion. Thrax does not himself use the word πνεῦμα in his short account of the letters, but his scholiast does and, as he wrote when β and φ were spirants, it will be instructive to compare his use of πνεῦμα with that of Dion. Halic.

Dion. Halic.	Scholiast.
κράτιστα...ὅσα τῷ πνεύματι πολλῷ λέγεται· δεύτερα δὲ, ὅσα μέσῳ· κακίω δὲ ὅσα ψιλῷ.	δασέα δὲ ... τὰ πολλῷ πνεύματι ἐκφωνούμενα· μέσα δὲ, τὰ μήτε πολλῷ μήτε ὀλίγῳ (=μέσῳ) ψιλὰ δὲ λέγεται, τὰ ὀλίγῳ πνεύματι.

and again

οὐδενὶ ταῦτα (κ χ γ) διαφέροντα τῷ σχήματι ἀλλήλων, πλὴν ὅτι τὸ κ ψιλῶς λέγεται, τὸ δὲ χ δασέως (=πολλῷ πνεύματι).	κατ' οὐδὲν γὰρ διαφέρει τὸ π τοῦ φ, εἰ μὴ ὅτι μετὰ πολλοῦ πνεύματος ἐκφωνεῖται.

These descriptions tally in a wonderful degree if we are to believe that one of these writers still pronounced χ φ θ as aspirates and the other pronounced them as spirants: they seem rather to point to a pronunciation common to both, always supposing that in both cases we translate πνεῦμα by "stream of air" or "breath." They both alike lay stress on the fact that the ψιλὰ and δασέα only differ from each other in that the latter are pronounced πολλῷ πνεύματι. Further, here should be noticed, what seems to have been quite left out

of sight, that these old grammarians counted letters as "in no wise differing" as long as they were pronounced "with the same organ of speech"—*ἐκφωνούμενα κατὰ τὸν αὐτὸν τρόπον τῶν φωνητικῶν ὀργάνων.* Thus, because π was an *ἄφωνον* and pronounced with the lips, β and ϕ being also labials would come under the same heading as π, *i.e.* under the first set of *ἄφωνα*, and this regardless of whether they were mutes or semi-vowels (*ἡμίφωνα*). Similarly $\tau\ \delta\ \theta$ and $\kappa\ \gamma\ \chi$ being placed in two distinct sets as *ἄφωνα* does not show that they were all real mutes, but only that for $\tau\ \delta\ \theta$ the tongue was in one and the same position, and in a different one for all the three $\kappa\ \gamma\ \chi$. That this was so is proved by the fact that even the scholiast of Dion. Thrax says that π and ϕ are only distinguished by the *πολλῷ πνεύματι* of the latter, otherwise they are the same, because they are *ἐκφωνούμενα κατὰ τὸν αὐτὸν τρόπον τῶν φωνητικῶν ὀργάνων*; he nowhere says that ϕ was not an *ἄφωνον* but an *ἡμίφωνον*, although it is allowed by all that in his time ϕ was certainly a spirant or *ἡμίφωνον*. Aristid. Quintil. also begins with the three that *διὰ τῶν χειλέων ἠχεῖται μόνον*, and goes on to the dentals and gutturals.

As the grammarians divide these letters into three sets according to the organ with which pronounced and make no further distinction between π and ϕ, κ and χ, τ and θ beyond that of the breath, Blass concludes that $\chi\ \phi\ \theta$ were, like $\kappa\ \pi\ \tau$, explosives because, as he says, "in the modern Greek pronunciation no one could ever maintain these letters to be mutes." This appears to be a somewhat too hasty conclusion, for the English *f*, *v*, *th* are quite as genuine spirants as the modern Greek $\chi\ \phi\ \theta$, and yet, as we before pointed out, they are in many grammars of the present day classified as mutes and, just

as the old Greek grammarians divided their nine mutes into three classes according to the different organ of speech employed, so nowadays we still find grammarians dividing the nine *mutes p, b, f,* and *v ; t, d, th ; k, g,* Scotch *ch ;* into three classes "according to the part of the mouth chiefly used in pronouncing them," *i.e.* into labials, dentals, and gutturals, and no further distinction is drawn between them except by saying that they are "sharp or flat, aspirated or unaspirated." Vide *Summary of English Grammar,* compiled for Notting Hill High School, third edition, Rivington, 1890, p. 5. Could we have a more exact parallel to the procedure of the Greek grammarians?

Thus the fact of the grammarians including χ φ θ under the mutes does not exclude the possibility of these letters having already been spirants at that time, or, in other words, no argument can be justly based on their classification of mutes.

To go back to the word πνεῦμα. This, in the last extract from Dion. Halic. where he speaks of τὴν προσθήκην τοῦ πνεύματος, πολλῷ, μέσῳ and ψιλῷ πνεύματι, is often translated by "breathing" in the technical sense, and προσθήκη is translated "addition" in its baldest sense, and thus προσθήκη τοῦ πνεύματος is taken to mean "addition of a breathing, *i.e.* an *h*" (*cf.* Blass, p. 99); if this is the correct translation, and the two sounds of the tenuis and spiritus asper were distinctly heard and had not coalesced into one, then it is perhaps strange that not a single writer mentions the fact that they have a double sound, as Dion. Halic. does of ζ ξ ψ. He particularly says that these are γράμματα διπλᾶ ἃ μικτὸν λαμβάνει τὸν ψόφον, then why does he omit to mention that χ φ θ are also διπλᾶ?

Then again, if πνεῦμα means 'breathing,' π κ τ, are pronounced with a ψιλῷ πνεύματι = spiritus lenis; φ χ θ with πολλῷ πνεύματι (or δασέως) = with spiritus asper; and β γ δ

with *μέσῳ πνεύματι* = with half the spiritus asper, or, expressed differently,—

π = Engl. p.
β = ,, b + ½ h.
ϕ = ,, p + h.

Even though there is a distinct difference in sound between a pure tenuis or media and an aspirated ditto, it is difficult to conceive of a half-aspirated letter, and would a nation have been able to go on for centuries pronouncing half-aspirated mediae without converting them into real aspirates or pure mediae? Even if it did achieve such a miracle, one would imagine that p and p + h would have sounded most alike of the three and that β would not have been pushed in between the two in a classification.

But, in truth, it does seem as if, in connection with the "mediae" especially, *πνεύματι* cannot bear the forced meaning of "breathing *i.e.* an h." If it must bear this meaning, then $\beta\,\gamma\,\delta$ were "half-aspirated" sounds, that is half-aspirated sonant explosives, and if so, it appears incredible that they should have existed as such any length of time in Greece. For, as we learn from Curtius and others, the Indo-Germ. sonant aspirates were certainly difficult to pronounce, and consequently not preserved in Greek and other languages of the Indo-Germanic stock, but converted into surd aspirates or pure mediae. Now, if this was the fate of the fully-aspirated sonant explosives, is it reasonable to suppose that a language which rejected them should for centuries have retained, if not actually introduced, half-aspirated sonant explosives? We think not. We cannot consequently reconcile ourselves to the idea that in these extracts *πνεῦμα* should mean "breathing," *πνεύματι πολλῷ* = "the strong breathing," &c. It seems a useless perversion of the meaning of the word, which after all does not give a satis-

factory proof of the theory it is required to demonstrate, whereas, if we give it its ordinary and natural meaning, then, though it certainly seems to adapt itself better to the spirantic theory, it still remains vague and indefinite and can be used for either. It is also difficult to understand how Dion. Halic. could speak of the δασέα as being nearest to the most perfect letters, the vowels, if they were pronounced as distinct tenues with a breathing, or as κράτιστα, strongest, if they were a weakened form of the tenues.

Aristid. Quintil. (in whose time it must be remembered χ φ θ were probably spirants) says: τὰ δ' ἔνδοθεν ἐκ φάρυγγος ὠνόμασται δασέα καί ἐστι λίαν τραχέα. Aspirated tenues do not answer to this description either very well, as they cannot be called λίαν τραχέα, whereas this epithet applies very well to the spirants; every one will doubtless admit that in ἄχος, for example, the sound is a much rougher one if it is pronounced "a*ch*os" with Germ. ch than when pronounced ak-hos; similarly in Aθῆναι = A*th*ῆναι with Engl. th, or = At-hῆναι, the spirantic θ is a much rougher sound. The breath, too, is not brought energetically from the larynx in pronouncing the aspirated tenues, but simply from the front of the mouth, whereas for the spirants it is most decidedly brought energetically from the larynx and the rough sound is produced.

As regards the individual letters θ φ and χ, it is generally taken that the description of Dion. Halic. proves them to have been aspirates in his time, whereas that of the Scholiast of Dion. Thrax shows that in his time they were spirants. We will take them singly and examine what is said about each. θ. From extract (*d*) from Dion. Halic. (p. 33) we see that for all three letters alike τ δ θ he says "the tongue is pressed against the upper teeth," whereas the Scholiast says that for θ, τῆς

γλώσσης ἀποχωρούσης τῶν ὀδόντων καὶ παρεχούσης ἔξοδον τῷ πολλῷ πνεύματι—and hence it is argued by Prof. Blass (p. 99) that θ according to Dion. Halic. is an explosive, not a fricative, "because the tongue is *not* pressed against the teeth in making the th-sound, but only brought near," just as the Scholiast says that for θ the tongue is no longer pressed against the teeth as it is for τ but comes away from them. (Aristid. Quint. does not mention the position of the tongue in pronouncing θ, and is therefore not referred to on this point.)

Now is it a correct statement to assert that in pronouncing the spirant *th* as in English (and modern Greek) the tongue "is *not* pressed against the teeth, but only brought near"?

We quote the words of two English writers on the subject, of whom the one has made Phonetics a special study and is generally taken as an authority. T. Walker, *Principles of English Pronunciation* says: "*th* in 'think' and 'that' are formed by protruding the tongue between the fore-teeth, *pressing it against the upper teeth* and at the same time endeavouring to sound the s or z;" and Prof. Sweet, *Primer of Phonetics*, p. 79, says of *th* in "thin" and "then":—"Certainly the most distinct form of these consonants is that produced by *placing the tip of the tongue* firmly *on the back of the upper teeth* and forcing the breath partly between the interstices of the teeth, partly between the sides of the tongue-tip and the surface of the teeth; but they can be—and often are—formed by bringing the tongue against the gums without touching the teeth."

Thus Walker agrees with Dion. Halic., and Sweet in his description of the "most distinct" pronunciation of *th* also agrees with Dion. Halic. in every point, whilst the rest of his definition answers to that of the Scholiast.

It is then clearly wrong to say that the description of Dion. Halic. could not be applied to θ pronounced as a spirant, seeing that it exactly resembles that which Sweet gives for the pronunciation of our English *th;* for we do not think that the meaning of ἔπειτα in Dion. Halic. is to be so forced as to imply that the first action, that of closure, must necessarily be at an end before the second begins.

Brücke (p. 53) says of the hard English *th* and Mod. Greek θ "that it is of no consequence whether the tip of the tongue lies between the teeth, is pressed against the lower teeth, or lies just behind the upper teeth..." and then he proceeds in words which might almost be a free modern translation of the second half of Dion. Halic.'s sentence on τ δ θ: "Das wesentliche für diesen Laut ist, dass *die Zunge mit den oberen Schneidezähnen,* und zwar mit ihnen allein *die Enge bildet und durch die Enge wird der Luftstrom hervorgetrieben.*"

The description given by Aristides Quint. for τ δ θ is vague and does not mention the position of the tongue, but only that "the teeth must be a little apart and the tongue hurls forth the breath, so to speak, through the opening thus formed." This is not at all exact but in general meaning seems to be identical with Brücke's description.

Add to the words of Dion. Halic. the words of Arist. Quint. that for the δασὺ, θ, the breath must be brought from the larynx and we obtain a perfect and complete description of our pronunciation of spirant *th.* Thus the argument that θ pronounced according to Dion. Halic.'s description must certainly be an explosive, not a spirant, entirely falls to the ground—because from it θ might be either.

We pass on to φ. Here Dion. Halic. and Aristid. Quint. write: τοῦ στόματος πιεσθέντος τὸ...πνεῦμα λύσῃ τὸν δεσμὸν αὐτοῦ

and *τὰ μὲν π β φ διὰ τῶν χειλέων ἠχεῖται μόνον τοῦ πνεύματος τὴν ἔμφραξιν αὐτῶν κατὰ μέσον ἐκβιαζομένου*, respectively; whereas the Scholiast on Dion. Thrax says that for *φ ἀνοιγομένων δὲ τῶν χειλέων πάνυ καὶ πνεύματος πολλοῦ ἐξιόντος ἐκφωνεῖται τὸ φ*,—and here the objection urged against a possible spirantic pronunciation of *φ* is, that the lips are not closed in producing *f*. They are, it is true, not closed in producing our dento-labial *f*, but even the Modern Greek *φ* does not correspond exactly to our "*f*," and in ancient times, if it was a spirant, it was presumably bilabial.

The descriptions given by Dion. Hal. and Arist. Quint. of the manner of articulating *φ* are certainly in every point correct, if *φ* was an aspirate; at the same time it must be remembered that these definitions may have been inaccurate and may rather denote the general characteristics of each group of three letters than the little differences in the peculiar method of articulating each individual letter.

If, on the other hand, *φ* was a spirant, not an aspirate, can their definitions be accepted as in any way applicable to a bilabial spirant? Dion. Hal. uses the expression *τὸ πνεῦμα... λύσῃ τὸν δεσμόν* and Arist. speaks of the *ἔμφραξιν τῶν χειλέων*, both of which indicate closure of the lips. According to Sweet (p. 30) no spirant is pronounced with closure or *ἔμφραξις*, whereas others (*v.* Ebel. *K.Z.* xiii. p. 265) say bilabial spirant *φ* is pronounced by keeping the lips closed as for *π* and then blowing through them.

Some of the Greeks themselves too say that they press the lips quite as closely together in pronouncing *φ* as in pronouncing *π*.

The scholiast's description, on the other hand, is most unsatisfactory—the lips are never "wide open" in producing *φ*,

be it pronounced as aspirate or spirant, unless he means that after the breath has gone forth, the lips are forced open, but then that would apply equally well, or better, to the explosive π.

Lastly, we come to χ. In the pronunciation of this letter "the tongue rises to the palate near the throat," Dionysius Halic. says, as it also does for κ and γ; he is thus evidently here describing a *palatal* κ γ and χ.—Whether ἀνισταμένης πρὸς...here means "is raised to" in the sense of "being pressed against" is, we venture to think, doubtful—it may do so and thus Blass evidently interprets it, for he argues that from this description complete closure of the vocal passage was required for sounding χ, but this is rather forcing the meaning of ἀνισταμένης πρὸς which seems to denote simply approximation of the tongue to the palate and to leave indefinite whether partial or complete closure took place.

There is not much difference between Dion. Halic.'s definition of the palatal letters and that of Sievers who (p. 53) says: Unter Palatalen verstehen wir die durch Articulation des mittleren Zungenrückens gegen den harten Gaumen gebildeten k-ähnlichen Verschlusslaute und die diesen entsprechenden Spiranten *e.g.* χ.

Certainly the ἀνισταμένης πρὸς...of Dionysius Halic. is so vague that, as he gives no further explanation of his meaning, we are left quite in the dark as to whether he really intended to denote complete closure by these words and to include all three letters under explosives, or whether both γ and χ or only χ were already spirants—if we had no further explanation of the nature of *k* and spirant *ch* from Sievers than the sentence quoted above, and no other grammarians to refer to, it would be difficult to tell wherein as regards the position of the tongue the difference between Germ. *k* and *ch* lay.

Aristides Quintilian says of this group: *τὰ δὲ ἠχεῖται, τῆς μὲν παρειᾶς ὑποσαιρούσης, τοῦ δὲ πνεύματος ῥαγδαίως καὶ εἰς πλάτος προϊεμένου.* This description is almost useless as he omits all mention of the *tongue*, which is the most important factor in the sounding of these letters, and what he does say is hard to interpret. That the cheeks should "grin a little" recalls the advice of Modern Greeks, who when trying to explain to foreigners how to pronounce their spirant χ constantly tell them to pull down the corners of the mouth.

The Scholiast on Dion. Thrax gives us a more accurate description of the letter χ than he does of any other, as, after saying that for κ the tongue is pressed against the palate, he goes on to say of χ, *τῆς γλώττης μὴ προσπιλουμένης μηδ' ὅλως συναπτομένης τῷ οὐρανίσκῳ*, which is of course the correct description of a spirant χ.

We have thus endeavoured to show, firstly, that the remarks of the grammarians must be used with caution, as they are very incomplete and we do not know definitely in what sense they use terms they employ, nor do we know for certain when Aristides Quintilian for instance lived, which is of importance for the value of his evidence; and, secondly, that if the remarks are carefully examined and weighed, compared with each other and with the remarks of modern grammarians, and translated in an impartial way and suitably to the context, they are at the best very hazy, indefinite and often incomprehensible.

In fact it is useless to try and derive conclusive arguments as to the specific nature of the letters involved from these sparse remarks of the grammarians, whose classifications may have been no less, or even more, faulty than those of some English and German grammarians of the present day.

CHAPTER VI.

ARISTOPHANES AND PLATO.

Apart from the grammarians we can glean very little from Greek writers to help us in deciding the probable pronunciation of χ φ θ, but what there is we will now briefly examine:—

In Aristoph. *Thesm.* l. 1183 ff. a Scythian is introduced who pronounces the χ φ θ of the Greek words as κ π τ, for instance τυγάτριον for θυγάτριον, ἀπότρεκε, ἑλαπρός, καρίεν, κεπαλή, and so on.

From this barbarian's manner of imitating the aspirates Curtius and Peile draw the conclusion that χ φ θ were certainly still real aspirates in Aristophanes' time, but we do not consider this conclusion justifiable.

Let us compare the pronunciation of this foreigner of ancient times with that of foreigners of present times and see whither this will lead us.

The French pronounce the Modern Greek spirants χ and θ as κ and τ, the Germans likewise say t or d for θ and, what is more remarkable, they nearly all say κ for χ in spite of their having a spirant 'ch' in their own language, and the English also generally say κ for χ; the φ is of course pronounced by all these as f.

Similarly French and Germans say t or d for English spirant 'th,' the Russians say t or f for θ, the Arabians of Egypt and Syria pronounce the hard Arabic 'th' as t, and the Slavs and Lithuanians represent Modern Greek φ and f by p, and German ch by k (*cf.* Blass, p. 102).

Thus then we see that in very many cases the spirants of a language are pronounced as the homogeneous tenues by people of other nations, and that the present spirantic $\chi\,\phi\,\theta$ are usually pronounced as $\kappa\,\pi\,\tau$ by those who cannot pronounce them correctly. This being so, is it a just deduction to make that because the Scythian in Aristophanes said $\pi\,\kappa\,\tau$ instead of $\phi\,\chi\,\theta$, these latter must have then been true *aspirates*, when we see that the French, German, and Slavs of to-day say $\pi\,\kappa\,\tau$ instead of *spirant* $\phi\,\chi\,\theta$? It by no means seems reasonable to make such a deduction in the face of the facts we have mentioned, as it might with equal justice be argued that since spirantic $\phi\,\chi\,\theta$ are often in the present day spoken as $\pi\,\kappa\,\tau$ by foreigners, then the Scythian's saying $\pi\,\kappa\,\tau$ for the ancient $\phi\,\chi\,\theta$ must prove they were then what they are now, that is, spirants.

However it is unnecessary and impossible to arrive at a definite conclusion as to the value of ancient $\phi\,\chi\,\theta$ from these Scythian mispronunciations—for, if they were true aspirates and he had none in his own language, he would naturally have spoken them as tenues; or again, if they were spirants and he had none similar to them in his mother-tongue, he would probably have spoken these too as tenues, as is so constantly being done at the present time. And, just as Aristophanes ridiculed the Scythian in his play, so the foreign pronunciation of the Modern Greek spirants is often now introduced on the stage and certainly has a very comic effect.

An argument often advanced by the supporters of the spirantic pronunciation of $\phi\,\chi\,\theta$ is, that if these letters had been real aspirates, then the difference in sound between them and the Scythian's pure tenues would not have been noticeable or peculiar enough to have aroused the mirth of a mixed Athenian audience. It does seem doubtful whether it would have been

distinct enough and yet the probability is that it would have been, for we find that the Germans laugh at the Czechs of Bohemia when the latter pronounce pure tenues in German words—and this habit is often made the subject of jokes in comic papers—and *vice versâ* Hungarians laugh at Germans when they aspirate the tenues of Magyar words. Thus this Reuchlinian argument falls to the ground, but so also does that of the Erasmians who judge from the Scythian's mistakes that φ χ θ must have been aspirates, and thus we are reduced to deciding that this passage of Aristophanes is of no assistance to us at all. We must also remember to leave a little margin for exaggerations in the caricatures of a comic poet, and can therefore not rely sufficiently upon him to assert that all Scythians always said π for φ and 'Αρτεμουξία for 'Αρτεμισία.

The only other passage we need mention is Plato, *Cratylus*, 427 A. διὰ τοῦ φ καὶ τοῦ ψ καὶ τοῦ σ καὶ τοῦ ζ, ὅτι πνευματώδη τὰ γράμματα, πάντα τὰ τοιαῦτα μεμίμηται αὐτοῖς ὀνομάζων, οἷον τὸ ψυχρὸν καὶ τὸ ζέον καὶ τὸ σείεσθαι καὶ ὁ σεισμὸς, καὶ ὅταν που τὸ φυσῶδες μιμῆται, πανταχοῦ ἐνταῦθα ὡς τὸ πολὺ τὰ τοιαῦτα γράμματα ἐπιφέρειν φαίνεται ὁ τὰ ὀνόματα θέμενος. This Jowett translates as follows: "And there is another class of letters, φ ψ σ ζ, of which the pronunciation is accompanied by great expenditure of breath; these are used in the imitation of such notions as ψυχρόν &c., and are always introduced by the giver of names when he wants to imitate what is windy (φυσῶδες)."

This Raumer takes as a positive proof of φ having in Plato's time been a spirant, while Blass thinks it should not be so taken, and seems to find an explanation of the epithet πνευματώδη in the fact that "σ has an aspirating power," and translates the sentence "φ ψ σ ζ are letters with a strong breathing."

There can, however, be no doubt that Plato did not intend to convey any such notion by his word πνευματώδη, if the passage is read in connection with the context, and especially with the next sentence, which says "these letters are used to imitate what is 'windy;'" hence πνευματώδη must mean, as Jowett says, that they require a great deal of breath. Placed in juxtaposition with simple and compound sibilants as it is here, and then further being designated as one of the letters which is used to imitate what is "windy," φ certainly seems as if it would answer better to this description if $=f$ than if it were $=p+h$, and it would also more fitly be ranked with sibilants. Without further evidence to confirm it these few words of Plato's are not sufficient to settle the fact of φ being a spirant, but such as they are, they certainly seem to indicate that it was such and no longer a real aspirate.

CHAPTER VII.

EARLY ORTHOGRAPHY.

THERE are various isolated facts connected with the ancient orthography which are taken as confirmation of the aspiratic pronunciation of χ φ θ, and amongst them is this one: that "those Greek races which did not possess the non-Phoenician symbols φ and χ, in those cases where they were not satisfied with the simple tenues, adopted the writing ΠΗ, ΚΗ." Among the races who were content with the simple tenues were the Cretans, who wrote π and κ for φ and χ—*e.g.* κρέματα = χρήματα. The inhabitants of Thera and Melos, however, wrote ΠΗ, ΚΗ for φ and χ; *e.g.* ἔκπηαντοι = ἔκφαντοι, for in the oldest inscriptions from these two islands and which

Kirchhoff attributes to the second half of the seventh century B.C. there are no special signs for ξ ψ ϕ χ, and in place of the two latter πh, κh are consistently written, which fact is held to prove that ϕ and χ were on these islands at this period pronounced as explosives followed by an "h." It is perhaps, however, unwise to draw this absolute conclusion, for although ΠΗ, ΚΗ are written for ϕ χ, ΤΗ is on no inscription written for θ, but always θ or ΘΗ, and these writings for ϕ and χ may, for all we can tell, be merely a clumsy attempt at representing the spirants for which, owing to the then incomplete state of the Greek alphabet, they had no special signs, whereas the aspirate or spirant θ, for which they had a Phoenician sign, is never resolved into its component parts.

These old writings can no more be used as incontrovertible proof of the aspiratic nature of ϕ and χ than the English writing "th" and the German "ch" could be used hereafter to prove that these "th" and "ch" were spoken as explosives followed by an "h."

But it seems much more strange that, if ϕ χ were really spoken as explosives followed by an "h," the Greeks should have felt the need of new signs to express them—if ΠΗ, ΚΗ exactly denoted their phonetic value, why was this writing abandoned and another adopted which did not clearly represent their sound? It seems a needless and rather senseless innovation on the assumption that ϕ and χ were aspirates; if they were spirants, it is easily comprehensible.

Still, even if ϕ χ θ were real aspirates, the necessity for the introduction of these signs may very well have been that the value of Η itself had changed, so that it now denoted η and consequently ΠΗ, ΚΗ could no longer be used to denote $p + h$ and $k + h$.

Again, that θ was an aspirate, and further that a need was sometimes felt to distinctly express the breathing which followed the tenuis, is said to be shown by the writings *θharυμακha, θharυμαϘhος* on the old Thera inscriptions, *I.G.A.* 444,449. Similar perhaps is *Φhραhσου* from Naxos, *I.G.A.* 407, if the Φ is correct, but it is doubtful, and even so the *h* here possibly belongs to the ρ, not to the φ. We must notice also that it is only twice that the "spiritus asper" is written after θ on the Thera inscriptions, on the others it is plain θ, *e.g.* *θεοθέμιος*, *ib.* 469; *Ὀρθοκλῆς*, *ib.* 451; *θετός*, *ib.* 456, &c.

This insertion of the "h" after θ may denote its aspiratic nature, but it may also have no real meaning. The spiritus asper was used somewhat loosely in Greek; in Old Attic it is sometimes inserted between vowels, it also appears after initial λ, μ and ρ, *e.g.* *λhέων*, *μhεγάρει*, its insertion in these places is explained by Blass (p. 88) as due to the fact that λ and μ when initial had their fullest, and not a weak, sound, as μ especially had when medial.

This same explanation might stand for the aspiration of initial θ, or otherwise the insertion may in these two cases very likely be an error.

Brugmann (*Greek Grammar*[2], p. 65) says that the insertion of the "spiritus asper" after the liquids showed that they were voiceless in these cases.

Another circumstance generally taken to prove that χ and φ were real aspirates up to the time of Eukleides at any rate, is this: that before the introduction of the symbols ξ ψ, the inscriptions from Attica, Styra in Euboea, and Cumae in Italy employed χσ, φσ for them, *e.g.* *ἔδοχσεν*, *γράφσαι*, *C.I.A.* 21; *Cumae* *κλέφσε*, *I.G.A.* 524; *Styra* *Μοφσίδης*, but also *χάροπς*; whilst in Amorgos and Thera they employed κσ, πσ, which

latter is undoubtedly the most correct manner of resolving the sounds ξ, ψ, *e.g.* Λαμπσαγόρεω, Bechtel, *Inschr. d. ion. Dial.* No. 29, from Amorgos; Ρεκσάνωρ *I.G.A.* 451, Πσήν *ib.* 461, from Thera. Now what do the writings χσ, φσ mean? That ξ = κ + *h* + ς and ψ = π + *h* + ς or that ξ = *ch* + ς and ψ = *f* + ς? If it means the former the *h* must certainly in this position have been all but inaudible, and then with the extremely slight difference in sound there can only have been between such a *κh*, *πh* and pure κ, π it is curious that plain πσ, κσ are never inadvertently written for φσ, χσ in the pre-Eukleidean Attic inscriptions, especially in such a word as ἐξ, which even stone-masons probably knew was another form of ἐκ and yet we never find ἔκς but ἔχς. To say that *κh*, *πh* were liable to be heard instead of κ, π because ξ was a γρᾶμμα πνευματῶδες is not sufficient explanation—we have no authority for saying that a γρᾶμμα πνευματῶδες means a "letter which has an *h* as one of its component parts."

Another fact which militates against our rashly assuming that the χ φ in χσ, φσ were aspirated tenues, and not spirants, is that on the archaic inscription of the sixth century B.C. from Naxos (*I.G.A.* 407) neither κσ nor χσ are employed for ξ but *h*σ (ΗΣ): thus ἔ⊦σοχος, Να⊦σίου, Φ⊦ρά⊦σου; while on a later Naxos inscription of the fifth or beginning of the fourth century B.C. (*I.G.A.* 410) χσ (Χς) is used, *e.g.* Ἀλχσήνωρ, Νάχσιος. These two facts when looked at side by side at once suggest, firstly, that the first component in the letter ξ was a spirant at least to Naxian ears, if *h*σ could be employed for ξ; and, secondly, that χ must have been a spirant also, if it was afterwards used for *h* in χσ as = ξ.

Unfortunately ψ or a substitute for it does not occur on the ancient Naxian inscription.

Another ancient inscription of the fifth or fourth century B.C. also found on the island Naxos which has Δωροφέα for Δωροθέα (the φ is very distinct), cf. *Bull. Corr. hell.* ix. p. 495, makes us think that φ and θ must have been spirants in Naxos by the fourth century B.C., and if these two letters were spirants then, that would make it still more probable that χ should have been one too.

It is quite likely that some races heard a hard explosive as the first component in ξ and ψ, and others a softer, spirantic element and therefore represented these compound sounds differently. In any case the name πνευματῶδες would apply equally well to ξ and ψ; as Plato includes σ under that class likewise, the mere fact that σ was one of the components of ξ and ψ would suffice to explain why he puts these two letters under the same category.

With this ancient Greek method of expressing ξ by χσ, where the χ may have been a spirant, we can compare the German manner of expressing the *x*-sound by *chs*, where the "*ch*" is *not* an aspirate but a spirant: *e.g.* wachsen = waxen, Fuchs = Fux. In the German *ch* the explosive is not distinctly heard, it is a *bonâ fide* spirant and yet this spirant *ch* + *s* is consistently written to express the sound *x* or ξ. This parallel removes the difficulty some feel to the possibility of χ having been a spirant when used with σ to express the sound ξ.

ANALYSIS OF CHAPTERS VIII., IX., AND X.

INTERNAL EVIDENCE OF GREEK (*continued*).

INTERNAL EVIDENCE OF GREEK.

Chap. VIII.

Evolution of the Phonetic Laws.

- Ancient Greek $\pi\tau$, $\kappa\tau$, $\phi\theta$, $\chi\theta$, becomes $\phi\tau$, $\chi\tau$ in Modern Greek
  - a few instances illustrate the tendency in Ancient Greek
    - in both Ancient and Modern the change in the case of the double tenues predominates.
- In Modern Greek a surd spirant often becomes tenuis before and after σ
  - before σ—change general in the vernacular, with few exceptions
    - in Ancient Greek find the tendency in Doric forms.
  - after σ—double forms in both Ancient and Modern difficult to explain according to the aspiratic theory.
- In Modern Greek the nasal before an Aspirate is often omitted
  - Ancient Greek examples of this omission, which is part only of a larger modification
    - both Ancient and Modern omit nasals before tenues, medials, and between vowels.
- In Modern Greek θ, ϕ, χ, sometimes become tenues after ρ
  - rather the exception than otherwise.
  - change of λ into ρ before ϕ disproves existence of any law to this effect.

Chap. IX.

The History of Interchange.

- Aspirates with Aspirates
  - (*a*) ϕ for ϑ, (*b*) θ for ϕ — (*a*) rare in Ancient (except Aeolic) and Modern; (*b*) occasionally in Ancient and Modern.
  - (*a*) χ for θ, (*b*) θ for χ — (*a*) rare in Ancient and Modern; (*b*) neither in Ancient nor Modern.
  - (*a*) χ for ϕ, (*b*) ϕ for χ — (*a*) and (*b*) occasionally in Ancient and Modern.
- Aspirates with Mediae
  - (*a*) δ for θ, (*b*) θ for δ — (*a*) rare in Ancient and Modern; (*b*) occasionally in Ancient, never in Modern.
  - (*a*) β for ϕ, (*b*) ϕ for β — (*a*) rare in Ancient and Modern; (*b*) one instance in both Ancient and Modern.
  - (*a*) γ for χ, (*b*) χ for γ — (*a*) and (*b*) rare in Ancient and Modern.
- Aspirates with Tenues
  - (*a*) τ for θ, (*b*) θ for τ — (*a*) and (*b*) frequent in Ancient and Modern.
  - (*a*) π for ϕ, (*b*) ϕ for π — (*a*) and (*b*) rare in Ancient and Modern.
  - (*a*) κ for χ, (*b*) χ for κ — (*a*) frequent in Ancient, rare in Modern; (*b*) frequent in Ancient and Modern.
- Two consecutive Aspirates for Tenues
  - $\chi\theta$, $\phi\theta$ for $\kappa\tau$, $\pi\tau$ — a few cases in both Ancient and Modern.
- Aspirates with Sibilants
  - (*a*) σ for θ, (*b*) $\sigma\sigma$ for θ, (*c*) θ for σ
    - (*a*) Ancient Laconian, Modern Laconian.
    - (*b*) Ancient Ionian, Modern not found.
    - (*c*) Ancient rare, Modern not found.
  - σ for χ — not found in Ancient, frequent in Modern dialects

Chap. X.

Elision and the Spiritus Asper.

- Can aspirates exist in a language when there is no initial *h*? — other languages referred to as examples.
- In the various dialects
  - Aspiration
    - *pro Aspir.* — regular aspiration in Attic, &c., proves: Aspir. = Ten. + Spir. Asp.
    - *pro Spir.* — no errors, such as πh written for ϕ, &c.
  - Psilosis — preceding tenuis affected in spite of the weakening of the Spir. Asp.

CHAPTER VIII.

PHONETIC LAWS.

BUT perhaps the most satisfactory and conclusive argument as to the nature of the Greek aspirates is based on a thorough investigation of the Greek written language itself. In order to conclude whether any considerable modification in the pronunciation of certain consonants has taken place during the progress of a language we must observe, not only to what extent the phonetic laws have been modified, but also what is the nature of such modifications. For certain modifications are natural to the growth of every language. Thus the tendency towards greater ease of pronunciation is natural to every language, and may be said to be, so far as it is possible, a constant factor; all modifications, therefore, based on the phonetic laws of *assimilation* and *adaptation* we must expect to find increasing and expanding in the course of the development of a language. So also we must look for the substitution of an easier sound for one more difficult of articulation, and thus it is that we expect the *interchange* of consonants of the same class, that is of those produced by the same vocal organs, according as greater or less exertion is required in their articulation; and not only this, but we expect the consonants of one class to be substituted for those of another in the different dialects of the same language, according as there is a local preference, indicating greater facility, for sounds produced by one set of vocal organs rather than by another. Thus the Ionians retained *κ* for *π*, *e.g.* *κοῖος* for *ποῖος*, the Dorians *τ* for *σ*, as *τύ* for *σύ*, *πλατίον* for *πλησίον*. Another modification of sound proceeding from the tendency

towards ease of articulation is the entire falling away or *dropping* of sounds, thus we have *σφάλλω* and *fallo*, and *vice versâ* *οἶνος* and vinum, and for final sounds the omission of *m* on early Latin inscriptions, and in the later stages of the language, whilst in contemporary Greek the vulgar pronunciation omits *e.g.* the *ν* of the acc. sing., saying *ἄνθρωπο* for *ἄνθρωπον*, also that of the neuter termination, thus *τὸ δένδρο*. Medial sounds are similarly dropped to avoid difficult combinations of sound, or simply to reduce one in itself not difficult to what requires still less exertion.

Given two stages of a language, therefore, separated from each other by a very considerable interval of time, we must not forget to make allowance for the natural expansion of phonetic changes based on the tendency above illustrated, and we must expect proportionate modifications of the original phonetic laws. We must, in other words, be careful not to interpret as a *change* of phonetic law what is only a *modification*, or a further application or extension in a parallel direction, due to the course of natural development.

We should also guard against assuming that we can lay down an absolute standard as regards the comparative ease of pronunciation of certain sounds or combination of sounds. For one sound may not only in a particular case be relatively easier to pronounce than another, which theoretically analysed requires no greater effort to articulate, but any certain kind or class of sound, which theoretically analysed is ascertained to require less effort for articulation than another, must not consequently be regarded as relatively easier of pronunciation. For, if we conclude in this manner, we are leaving out of sight the consideration of physical, and oftentimes theoretically unaccountable, national and local preferences.

Thus we are not justified in concluding that because we cannot pronounce such a combination of sounds as "prst" and "krk," therefore a Slav cannot do so, or, to come nearer home, that, because certain combinations of consonants are so difficult for us to pronounce as to be quite impossible, therefore a Welshman cannot easily pronounce them.

Finally, much precaution is necessary in avoiding an assumption that there is anything of the nature of absolute as regards *euphony*. It is better, indeed, not to argue at all as to what sound may be said to be more euphonious than another, than to risk losing sight of the fact that what may sound euphonious to us, may not sound, or have sounded, so to others; and *vice versâ*.

The caution, however, that is necessary in arguing from a certain standpoint as to *ease of pronunciation* and *euphony* does not render these tests altogether inapplicable, in so far as from a careful examination of the phonetic laws of the language under observation we are enabled to gain a more or less accurate idea—this varying with the nature and abundance of material at our disposal—of the relative standard of either as illustrated in that particular language.

Bearing these preliminary and necessary observations constantly in mind, therefore, we will now proceed to review some salient points in Modern Greek phonetics, and examine these carefully by comparison with the ancient language.

If in doing so we think we can show that, apart from what may be considered natural development and extension, the original phonetic laws have been preserved, and the same interchanges of sound take place now as took place in the earlier stages of the language, we shall conclude also that those sounds to which such phonetic laws and interchanges apply have

suffered no radical change in the interval, so that their present would, for all practical purposes, represent their ancient pronunciation.

In the first place, then, one of the most striking features of the modern language is the dislike evinced to the juxtaposition of two surd spirants or two tenues; and to avoid such a combination in the case of two spirants coming together, the second one, *θ*, is generally changed to the tenuis; and in the case of *πτ* or *κτ* the *π* or *κ* is changed to the corresponding spirant; thus for *φθάνω* we have *φτάνω*, for *ἐχθές*, *ἐχτές*, and for *κλέπτης*, *κλέφτης*, for *νύκτα*, *νύχτα*. This rule is, however, not invariably observed as *φθ* is still frequently heard: *ἀναπαυθῆτε* = *ἀναπαφθῆτε*, for instance, is never, to our knowledge, pronounced *ἀναπαφτῆτε*, nor does it hold good as yet for the combination *-κπ-* which does not generally change, thus *ἐκπορεύομαι*, &c., do not become *ἐχπορέυομαι* in the ordinary language, though in the dialect of Trebizond we already find instances of this change, thus *ἀχπάνω* for *ἐκπηγαίνω*, *ἀχπαράζω* for *ἐκσπαράσσω*. We can, however, diregard these few exceptions as they do not invalidate the general rule.

The frequency of the forms with *φτ*, *χτ* is adduced as being an example of a new phonetic law, unknown to ancient Greek, and which therefore justifies the conclusion that the sounds *χ φ θ* must in the ancient language have been fundamentally different from what they are now.

Such forms are frequent it is true, but have we not here an instance of development and extension rather than of radical difference in the phonetic law? Of development very considerable indeed, to judge from the few precedents extant in the ancient language, but still of development; and we must not forget that it is not only from the *quantity* of examples that we

must draw our conclusions, especially when, as is the case in Greek, we are the less justified in so doing because of the small total remnant of the language of the uneducated and of every-day intercourse as compared to that of the educated and literary world.

Bearing, then, this caution in mind, we turn to the ancient language to see if we can find anything to justify us in thinking that this modern feature is not a change, but a development of a law already anciently existing.

There are apparently no traces of a writing $\phi\tau$ for $\phi\theta$, or of $\phi\tau$ for $\pi\tau$, but of $\chi\tau$ for $\kappa\tau$ there are three, or maybe four, examples extant and perhaps one of $\chi\tau$ for $\chi\theta$, and these examples, few as they are, are most valuable as precedents of the modern usage. They are the following:

from Attica Εὔταχτος = εὔτακτος, Roscher, *Curt. Stud.* i. 2, p. 81.

from Chios ἐχ τῶν = ἐκ τῶν *C.I.G.* 2241.

from Sagalassos κατέχτανεν = κατέκτανεν *ib.* 4377, 5.

and from Elis ἐν ταχτᾷ = ἐν τακτῇ (?) *I.G.A.* Add. 113, c. 2.

The second and third examples belong to the Roman period, while the last one is probably not much later than 572 B.C. (*v.* Roberts, *Greek Epigraphy*, p. 298).

Thus we have three definite cases dating from pre-Christian times of $\chi\tau$ being written for $\kappa\tau$. The last example, which Bücheler takes as equivalent to ἐν τακτῇ (cf. *Rhein. Mus.* xxxvi.) and which would, if his view be correct, make the fourth instance of $\chi\tau$ for $\kappa\tau$, Comparetti (cf. *Journal of Hellenic Studies* ii. p. 373) interprets differently, for he takes the original ἐντάχται as standing for ἐντάχθαι, *i.e.* ἐντετάχθαι with an omission of the reduplication, and τ an error for θ. If this

be so, this word would be a solitary example from the ancient language of $\chi\tau$ for $\chi\theta$. Blass corrects it into *ἐν ταὐταις* (*v.* Roberts, p. 369). Of these instances the contemporary language shows not only development by the frequency of such forms, but extension likewise by the application of the same change to two successive spirants, and also to the group $\pi\tau$. Thus we have firstly $\chi\tau$ and $\phi\tau$ instead of the two aspirates $\chi\theta$, $\phi\theta$ in such cases as: *ἐπλέχτηκα* = *ἐπλέχθην*, *ἐχτές* = *χθές*, *ὀχτρός* = *ἐχθρός*, *φτάνω* = *φθάνω*, *φτηνός* = *εὔθηνος*, *ἐγράφτηκα* = *ἐγράφθην*, etc. and secondly $\chi\tau$, $\phi\tau$, instead of the two tenues $\kappa\tau$, $\pi\tau$, examples of which abound, such as: *ἀδράχτι* = *ἄτρακτος*, *ἀχτῖδα* = *ἀκτίς*, *ὀχτώ*, *νύχτα*, *στάχτη*, *γαλαχτίζω*, *βρεχτός*, *ἀνοιχτός*, *φράχτη* = *φράκτης*, *φοῦχτα* = *πύκτη*, *ἄπραχτος*, *ἐχ τηθῆς* (Trebizond), (also initial) *χτῆμα*, *χτίζω*, *χτένι* = *κτείς*, *χτύπησε* (vernac.); and again, *φτύω*, *φτωχός*, *φτέρνα*, *φταίγω* = *πταίω*, *φτερό* = *πτερόν*, *φταρνίζομαι* = *πτερνίζομαι*, *ῥάφτης*, *κλέφτης*, *ἑφτά*, *βαφτίζω*, *πέφτω*, *νίφτω*, *κόφτω*, *ἀστράφτω*, *ἄφτω*, *ἄθαφτος*, &c., &c. An explanation has been suggested, according to which we have an extension by analogy in the contemporary language of the change of θ into τ after σ already so prevalent in the ancient language. So that θ would subsequently have been changed into τ not only after σ, but after χ and ϕ also, and then the familiarity of the sounds $\phi\tau$, $\chi\tau$ would have led to the frequent change also of π and κ into ϕ and χ before τ. The objection to this explanation is that it assumes the priority of $\phi\theta$, $\chi\theta$ becoming $\phi\tau$, $\chi\tau$ over that of $\pi\tau$, $\kappa\tau$ being changed to $\phi\tau$, $\chi\tau$, and the considerably more numerous instances of the latter change in the contemporary language at least seems to argue against such a priority. The latter change is actually far more common in contemporary Greek. As it happens, three of the four examples surviving from the ancient language are

instances also of the change of *πτ*, *κτ*, not of *φθ*, *χθ*, into *φτ*, *χτ*; but this, since it may be merely accidental, cannot be taken as evidence. Considering, however, the difficulty which prevents our accepting without hesitation the explanation adduced, we prefer to consider the present combination of spirant and tenuis a development and extension of what had actually begun in the ancient language, but of which we have very few instances remaining.

Again, it is laid down as a distinctive law of Modern Greek that "*σ* does not admit of a surd spirant either immediately preceding or following it"—here, likewise, we must investigate whether this is quite a new law, unknown to the ancient language, or whether it is not rather the natural development of a tendency, the beginning of which can be seen not only in other ancient dialects, but even in Attic.

We will first take the case of a spirant immediately *preceding* *σ*; this in the popular language is now generally changed into a tenuis. The most numerous examples of this change are found in the future and aorist endings of verbs in *-αύω* and *-εύω*, which instead of *-αύσω*, *-εύσω*, &c., are generally spoken as *-άψω*, *-έψω*, &c. (*-αύσω*, *-εύσω* being =*-άφσω*, *-έφσω*), thus *κλαύσω* becomes *κλάψω* and *ἐβασίλευσα*, *ἐβασίλεψα*; further for *κάθισε*, *κάτσε* is frequently heard.

On the other hand, a word in constant use is *ἄφσε*, a contraction for *ἄφησε* or *ἄφησον*, and this is never changed into *ἄψε*, although the spirant directly precedes the *σ*. Similarly *παύσω*, *ἔπαυσα*, &c., are quite as often, if not oftener, spoken as *πάφσω*, *ἔπαφσα*, &c., than as *πάψω*, *ἔπαψα*, &c., and the same can be said of the forms of *πιστεύω*.

Not only has no definite law been established in Modern Greek by which *σ* does not admit of a preceding surd spirant,

but we find the tendency now so fully developed originated in ancient Greek. Thus in Doric we have *ψέ* (Theocr. iv. 3), and *ψίν* for *σφέ* and *σφίν* respectively, these latter having by metathesis become *φσε*, *φσιν*, and then *ψε*, *ψιν*.

Further illustration of the fact that this tendency already existed in ancient Greek is afforded by the forms *ψίσις*, *ψίνομαι*, *ψινάδες*, *διψάρα*, *μόροξος*, *ἔξιστον*, and others given by Hesychius. These are respectively equal to *φθίσις*, *φθίνομαι*, &c., and can only be explained from a spirantic pronunciation of *φ* and *θ*, so that to arrive at the forms in question the following successive stages may have been passed through, *e.g.* *φθίσις* (= fthisis) = *φσίσις* = *ψίσις*; Meyer (*Greek Grammar*[2], §§ 209 and 250) gives the stages as probably *πθ* – *πth* – *ψ*. We thus have exact counterparts to the modern writing *ψ* for *φσ*.

We will next consider the dual forms of words written with either aspirate or tenuis *after* the letter *σ*. Such forms are numerous, both in Ancient and Modern Greek, *e.g.* *σχελίς* and *σκελίς* in Ancient, *σφυρίς* and *σπυρίς* in Ancient and Modern, *ἀσθενής* and *ἀστενής* in Modern. The question for us to consider is whether the almost consistent pronunciation of *σκ*, *στ* for *σχ*, *σθ* (but *not* *σφ* for *σπ*) in Modern Greek is indicative of a new phonetic law unknown to classical Greek, or whether it is a continuation and development of a process which had already then begun. Blass (p. 103) lays down as one of the distinctive phonetic laws of Modern Greek that "*σ* does not allow of a surd spirant immediately following it." And Curtius and Roscher teach that of the duplicate forms those written with an aspirate in Ancient Greek are due to the aspirating influence of the preceding *σ*, and that they are later forms than those written with a tenuis. This theory

seems to have been generally accepted, and according to it the adoption of στ, σκ for σθ, σχ in Modern Greek would certainly be a distinct reversal of the ancient law.

But are the forms written with tenues older than those with aspirates? And has the aspirating influence of σ been fully established? Bezzenberger (*cf.* Bzzb. *Beitr.* vii. 63 ff.) propounds another theory in which he is supported by Gustav Meyer (v. *Greek Grammar*, 2te Aufl. p. 207) and Grassmann, and that is that the forms with aspirates are the older and then in many cases the aspirate has been changed into a tenuis. The aspirating influence of σ has not, he says, been proved, as in many cases adduced to prove it the derivation of the word adduced is very uncertain, in others the aspirate-form is recognised as quite as old or older than the tenuis-form, and again, aspiration is in many cases produced by analogy, as in δέχομαι from √δεκ; τεύχω from √τυκ.

For the majority of these double forms the aspirate is due to an original Indo-German surd aspirate which has been preserved in Greek, although very often it is represented by a pure tenuis in the kindred languages. Curtius, on the other hand, says that in these cases the surd aspirate of the Indo-German became a tenuis in Greek first and then became an aspirate again owing to the preceding sibilant. But why this step backwards and then another forwards to restore the word to its first state should be necessary, or even probable, it is difficult to understand.

It seems much simpler to suppose that the Greek surd aspirate in these cases corresponds to the Sanskrit surd aspirate and was the earlier form of the word, and not only simpler but more in accordance with facts also, as in some words, *e.g.* λίσφος and σφόγγος with by-forms λίσπος, σπόγγος, the φ is

recognised as being prior to, or at least quite as early as, the π. σφόγγος is from stem *spheng*, whereas σπόγγος is a later form, and λίσφος appears to be for λιτ-Fος where perhaps the φ may be taken as representing the F, and the by-form with π has not been proved to be earlier.

So too of σκεθρός and σχεθρός (σχεδρός), σχεθρός is undoubtedly the prior form as its derivation from σχεθ-εῖν shows (and the κ is due to dissimilation). And yet these three words are constantly placed among those in which the aspirate is said to be due to the σ.

Of other words which were written indifferently with aspirate or tenuis (although generally preferring the aspirate) and in which the aspirate appears to correspond to an Indo-Germ. surd aspirate we may mention :—

ἀ-σ(φ)άραγος which with σφάραγος (only found in compounds), σπαργάω and φάρυγξ appears to be connected with Sanskrit *sphurg*, σφυρίς, σφυράς, σφονδύλη, σφόνδυλος (*cf.* σπαίρω, σπείρω &c.), ἀ-σφόδελος : Sanskrit *sphar* = whirl.

σχενδύλη, σχινδαλμός or σκινδαλμός, σχάζω (*cf.* also σκεδάννυμι &c.) : Sanskrit *skhad* = split.

σχελίς (*cf.* σκέλος) : Sanskrit *skhal*.

Besides these of λισφός and λισπός the π can "only claim relative priority." So also Βόσφορος and Βόσπορος, probably connected with φέρω. Αἰσχλαβιῷ is found for Ἀσκληπιός at a very early date (*I.G.A.* 549), and as the etymology of the word is quite unknown, it is impossible to say whether χ or κ was the earlier ; so too Ἀσχλαπιών (third century B.C.) new *C.I.G.* 2716.

The probability of this supposition is enhanced by the evidence we have that a de-aspirating tendency after σ was at work very

early in some dialects and even somewhat affected the Attic dialect; that the inverse tendency should have existed at the same time in the same dialects is not at all likely.

This de-aspiration is most evident in the Elean and Lokrian dialects in which στ is constantly written for σθ, *e.g.* Locr. ἐλέσται, θῳέστω *c.* 431 B.C. *I.G.A.* 322; El. τιμώστων, κελοίσταν, λυσάστω *I.G.A.* 117, 119, 121. Further Phoc. ἀποπολιτεύσασται and παραγενέσσται second century B.C. *Bull. Corr. hell.* v. p. 398; and from Elis again πάσκοι = πάσχοι, *I.G.A.* 112, of sixth century B.C.

from Attica καθαριζέστω, *C.I.A.* iii. 743, of second or third century B.C.

„ „ Ἐπιστένου, *C.I.A.* ii. 2683, of second century B.C.

„ „ Λακιστένου, *C.I.A.* ii. 1499.

ἀσκάστους (= ἀσχάστους), *C.I.G.* 4255, fourth century B.C.

„ „ Ἀλκιστένου, Ἀθην. v. 417.

„ Megara Αἰγοστενῖται, *Mitth. Arch. Inst.* viii. 183.

„ Messenia ἀγείστω, Cauer², 47, 28.

„ Delphi γινέστω, θέστων, &c.

Since therefore we have these proofs that not only was de-aspiration after σ at work more or less in all dialects but also that of the words written with aspirate or tenuis, the forms with aspirate can in some cases undoubtedly claim priority whilst in the others they cannot be proved to be posterior to those with tenues, the rational conclusion appears to be that the forms of words written with aspirate after σ are the original and that the de-aspirating influence of the sibilant σ produced the forms with tenues. Further, that this law of de-aspiration after σ, which had commenced in the classical era, especially outside

Attica, has continued to gain force but is not even yet fully developed, because though it holds good for $\sigma\chi$, which is now always pronounced $\sigma\kappa$, and mostly for $\sigma\theta$ also, yet $\sigma\phi$ still holds its own and is only in Trebizond pronounced as $\sigma\pi$, which shows that the change already completed for $\sigma\chi$ and $\sigma\theta$ has also begun for $\sigma\phi$.

Contrariwise, if the combination $\sigma\phi$ with ϕ = a spirant can be pronounced as we know it still is at this day, $\sigma\chi$ and $\sigma\theta$ with χ and θ = spirants most probably also existed at some time ($\sigma\theta$ = sth has not died out yet entirely) or other in the ordinary language, *v.* Psichari (*Mém. d. l. Soc. de Ling.* vi. 304). When were the χ and θ in $\sigma\chi$, or $\sigma\theta$ pronounced as spirants? We see that now in 1890 A.D. they are usually pronounced as tenues in these combinations and we have evidence from the inscriptions that by B.C. 400 they had already begun to be so pronounced, so that if at that date χ and θ were real aspirates, we are obliged to imagine that from original aspirates they became tenues in $\sigma\chi$, $\sigma\theta$; from tenues, spirants; and then from spirants, tenues again. Because if χ and θ were never spirants in the groups $\sigma\chi$ and $\sigma\theta$, how can we account for the existence of a spirant ϕ in $\sigma\phi$? For if the popular $\sigma\tau$, $\sigma\kappa$ of Modern Greek in place of $\sigma\theta$, $\sigma\chi$ is to be regarded as a survival from Ancient Greek when $\sigma\theta$, $\sigma\chi$ became $\sigma\tau$, $\sigma\kappa$ through loss of the breathing, how is it that we have not also a modern $\sigma\pi$ to correspond to the ancient $\sigma\phi = sp + h$? or, in other words, why of the three ancient aspirates has ϕ alone become a spirant after σ, whereas θ and χ after σ are supposed to have lost the breathing in very early times and to have remained pure tenues in this combination ever since?

That which has become a definite and fairly universal law in Modern Greek for the pronunciation of χ and θ in $\sigma\chi$, $\sigma\theta$,

and which will in course of time presumably also become so for *σφ*, was only in embryo in ancient times and not firmly fixed in the middle ages. In Prodromos *στ* or *σκ* seems difficult to find, and in the *Chansons Populaires* (Legrand i.) from the MS. de Vienne of the fifteenth century or earlier we find *στ*, *σκ* or *σθ*, *σχ* written indifferently, *e.g.* *ἀσθενᾶ* and *δροσιστῆ* (p. 34), *σκολή*, *ὀργιστῇ* (p. 48), probably *ἐξουριστῶ* (p. 62) *ἀσθένεια* (p. 68) from the fifteenth century, *σχῆμα* from the twelfth century (?); [and from the beginning of this century *c.* 1820 A.D., we have *ἐπιάσθηκαν* and *κατηράσθηνα* (p. 146), *ζωσθῆτε* p. 150], and from Wagner's *Medieval Greek Texts* prior to 1500 A.D., *ἀσθένεια* *passim*, *σχισθῆν*, *διχασθῆν*, *ἀσχολῆσιν*, *σχοῖνιν*, *καλυβιστοῦν*, *ἐγελάσθην*. In the tenth century we get the form *σχαρῆκιν* = *εἰς χάριν*, and *μοσχοβολᾶνε* and *ξεσχίζοντας* from the seventeenth century, and from Koraes, *Ἄτακτα* ii., we get the following words which are anterior to the fifteenth century: *σκάζω*, *σκῶ*, *σκάρι* = *ἐσχάριον*, *σκατόγερος* = *ἐσχατόγερος* and *ἐθαυμάστην*. We notice that *σκ* is found more frequently in the middle ages than *στ* and, conformably to this advance on the part of *σκ* during those ages, we find that it is the only group of which can be said nowadays that it is always spoken instead of *σχ*. The transition of *σθ* into *στ* is not yet complete; thus in the beginning of this century we find in Legrand i. *ἐπιάσθηκαν* v. *κατηράσθηνα* p. 146 and *ζωσθῆτε* p. 150, the word *πρόσθεν* is seldom pronounced *πρόστεν*, and in Michalopoulos' *Ἄσματα*, a collection of modern popular songs, we have *φιλιούμασθε*, *κοιμᾶσθε*, *βιασθῆτε* intermingled with similar forms written with the tenuis after *σ*, *i.e.* *στ*. This evolution of tenues out of *χ φ θ* after an immediately preceding *σ* has then, as we hope we have not unsuccessfully attempted to show, been in progress ever since

the fifth or sixth century B.C.; between that time and the present we cannot lay our finger on any period and say "At this period there is no instance of *σκ*, *στ*, *σπ* for *σχ*, *σθ*, *σφ*, but *χ φ θ* were evidently being spoken and written as spirants in these cases, and it is only from this time onward that the spirants after *σ* gradually changed back into tenues, a transition which has not yet reached completion." No, we certainly cannot do this, and hence we seem obliged to conclude that *χ φ θ* must have been spirants before they ever began to be changed into tenues after *σ*. Take, for example, the word *σθένος*—say this in Attica in 400 B.C. was properly pronounced st + henos, in 1890 it is pronounced "stenos" or sometimes "s-th-enos," and soon after 400 B.C. we find it is already sometimes pronounced "*st*enos" there as shown by the wrongly-spelt inscriptions Ἀλκιστένου, Λακιστένου, Ἐπιστένου, yet in the middle ages when *θ* was confessedly a spirant we have *ἀσθενά* and *ἀσθένεια*, *(ἐ)ξασθενῶ*. Now when and how did spirant *θ* get in? Did it already exist before 400 B.C., and was *σθένος* = "s-th-enos" then and not = "st + henos," or were two changes going on simultaneously in the same word? That is, was *σθένος* on the one hand becoming *στένος* without aspiration, and on the other hand gradually changing its *θ* from an aspirate into a spirant, so that by 1200 A.D., let us say, the two forms, *στένος* and *σθένος* with spirantic *θ*, existed side by side? That such contrary tendencies should have been at work at the same time in the same dialect is highly improbable, and therefore if we do not wish to assume that *χ φ θ* were spirants even in the fifth and fourth centuries B.C., the only other explanation of these double forms which have stood side by side from that remote period down to the present day is that of dialectical preferences, in other words, that in some dialects, *e.g.* the Elean and Locrian,

the aspirate after σ was very early replaced by its corresponding tenuis, whereas in others, *e.g.* in Attic, the aspirate held its own in this position until in the course of ages it here as elsewhere gradually developed into a spirant. Then after Christ when the κοινὴ διάλεκτος, a mixture of all the dialects without the distinctive features of any one, was the Greek commonly spoken, these dual forms from the various dialects were also gathered in and became common property, and were then used indifferently for some time until, as the modern language shows, the forms in στ, σκ ousted those in σθ and σχ, while the sturdier σφ still remains, though that too will sooner or later share the fate of σθ and σχ.

If this second explanation be adopted, then the examples we have from Attica of στ, σκ for σθ, σχ must be regarded as the work of strangers who spelt according to their own dialect. Altogether though, this explanation does not seem satisfactory, for, seeing the many different dialects which give us forms in στ and σκ, it seems strange that the corresponding ones in σθ and σχ should have had the force to survive right into the middle ages and even longer, and also that σπ for σφ should not be universal in the modern language as σκ and στ are. For here we must draw attention to the fact which we only just stated before that σφ is still spoken throughout Greece, as is admitted by Foy and even the great popularist Psichari. It has only in Trebizond become σπ in some words, and *vice versâ* π has in a few words been changed into φ after σ, *e.g.* the Naxians and Gaeopontines say σφυρίς for ordinary Greek σπυρίς (both these forms are old). We also find several varieties, σφοντύλι, σπόνδυλος and σφόνδυλος, and the popular forms σφογγί and σφογγάρι (answering to the ancient σπογγίον and σπογγάριον) as well as the old form σφόγγος

which is known still to exist in the present spoken language. But except in these dual forms, *στπ* is not spoken for *σφ*.

Thus this non-existence of *στπ* for *σφ* (except in Trebizond), parallel to the *στ* and *σκ* for *σθ* and *σχ*, militates most strongly against the supposition that in the modern *στ* and *σκ* we have the survival of the explosive component of the ancient aspirate.

All things considered, it seems as if we had in this case a chain of evidence to show that from very early times *χ φ θ* were spirants, and that a preceding *σ* caused their change into the corresponding tenuis, as it still does; or even, if this is too rash a deduction, it is at any rate clearly evident that in many cases the *χ φ θ* immediately following *σ* was from very early times changed into the tenuis, and that consequently this change which for two of the three sounds regularly takes place in the modern language cannot with any justice be styled "a new departure."

Another difference in phonetic law is said to be illustrated by *a surd spirant not allowing a preceding nasal*, so that in the language as now spoken we get such forms as *ἄθθος* for *ἄνθος*, *νύφη* for *νύμφη*.

But if we look a little more closely into this, we shall see that this phenomenon in the contemporary language, far from being a new phonetic law, is likewise but an extension of a modification that had already attained considerable currency in Ancient Greek, to judge only from such examples as have survived.

But there is another reason which argues still more conclusively against calling this a new phonetic law of the present language, and this is the fact that the modification we are now to consider is only part of a larger one, begun in ancient times and still in force, according to which nasals were omitted, not

only before aspirates, but also before *mediae* and *tenues*, and that from the sixth century B.C. downwards.

Blass, in speaking of this omission of the nasal in Ancient Greek, remarks in a footnote (p. 87) that "this rejection of the nasal appears in Modern Greek too, but only before $\chi\,\phi\,\theta$ owing to a special tendency." We venture to think that this remark would give a wrong impression to any one who did not know Modern Greek; he would imagine it meant that the nasal only disappeared before $\chi\,\phi\,\theta$, whereas it constantly does so before tenues and medials also, just as it used to do in Ancient Greek.

Examples of the omission of the nasal before a tenuis in Ancient Greek are *τύπανον*, poetical form for *τύμπανον*, Eur. *H.F.* 888 &c., *εὔκαμπες* which is scanned as a dactyl in *Anthol.* p. 6, 4; so also *ἀμπλακήματα* scanned as *ἀπλακήματα* in *Eum.* 934, and *ἀναμπλάκητος* which the metre requires to be read as *ἀναπλάκητος* in *O.T.* 472. And from inscriptions Ὀλύπιος, Ὀλυπιόδωρος &c. *passim* in *C.I.G.*, Ἐκέλαδος on a vase *C.I.G.* 8182, and Ἀταλάτη *ib.* 8185 on one of sixth or fifth century B.C., Τυτάρεος *ib.* 8220, *Cypr.* *ταλάτων*, *ἀτί* *cf.* Coll. i. 60. Corresponding to this we find in Modern Greek *ὅτινα* = *ὅντινα*, *κοτός* = *κοντός*, *κάνω* = *κάμνω*. Psichari is not quite exact in saying "*ν* est resté partout où il était devant une explosive ancienne *e.g.* *πάντα*."

Before mediae it is also omitted (or assimilated) in both Ancient and Modern Greek, *e.g.* *ξυββάλλεσθαι* *C.I.A.* ii. 52c, Pamph. *ἀδρί*, *γένοδαι*, *πέδε* (= *πέντε*) &c. *I.C.A.* 505, Delph. Ἄθαββος, Τιμάδρα (= Τιμάνδρα) Meisterhans § 31, *καββάς* a *var. lect.* for *καμβάς* = *καταβάς* in Pind. *N.* vi. 58, and *κύββα* a by-form of *κύμβη*.

In Modern Greek *μάδρα* = *μάνδρα*, *κύβαλα* = *κύμβαλα*. Lastly, the omission of the nasal, especially *ν*, is very frequent

before $\chi\ \phi\ \theta$ in the present language, *e.g.* *νύφη* (= *νύμφη*), *ἄθος* (= *ἄνθος*), *συχωρῶ* (= *συγχωρῶ*), *κολοκύθι* = *κολοκύνθιον*, *μαθάνω* = *μανθάνω* and many others. But it is by no means regularly observed in every case and, to speak impartially, one might almost say that the forms without the nasal are not much more frequently heard than those with the nasal, and some words there are in which the nasal is never omitted, such are *ξανθός* and its compounds as *ξανθοῦλα*. *ἄνθος* and *ἄνθη* are quite as common as *ἄθθος*, *ἄθθη*, *ἀνθίζω* more common than *ἀθίζω*, *ἄνθρωπος* and *ἄθρωπος* used indifferently, *ἐνθυμᾶσαι* rarely, if ever, becomes *ἐθυμᾶσαι*, *νύφη* always spoken for *νύμφη*, and so on. In the extant poems of the middle ages there are very few words to be found containing a surd spirant preceded by a nasal, in Legrand vol. i. *πανθάνω* and *ἄθουσι* occur in a poem prior to the fifteenth century.

This omission of the nasal before $\chi\ \phi\ \theta$ can be paralleled by similar spellings from Ancient Greek which are found in most varied places and times. Like the modern *νύφη* we find on vases of the sixth and fifth century B.C. *ἀφί* (= *ἀμφί*), *νύφης* and *νύφαι* (*cf.* Meisterhans § 31), and on an archaic inscription from Siphnos *νυφέων I.G.A.* 399; also *Νυφόδωρος C.I.G.* 3155, 8 and *Ἀφιέρεως C.I.G.* 7710; and on the Corinthian clay tablets (Röhl, *D.I.* 3119f.) *Αμφιτρίτα* is twice written with an *μ*, twice with *ν*, and twice without a nasal, which shows how weak and uncertain the sound of the *μ* must have been—also *Ἀφιαρῆος* *ib.* 3140.

Like modern *συχωρῶ* we have on an Ionic papyrus of uncertain date, probably of the time of the first Punic War (*cf.* Petrettini, *Pap. Greco-Egizj.* l. 15), *τυχάνοι* and *τυχχάνοι* for *τυγχάνοι*.

In Cyprian the nasal is never written before a consonant and

so this dialect has ἄθρωπος (= ἄνθρωπος) and Τρεμιθοῦς which probably stands for Τερμινθοῦς; these can be compared with the modern ἄθρωπος. Like modern ἄθος, μαθαίνω &c. are Λάπυθος from Corinth (Röhl, *D.I.* 3132), and Σμίθιος (Ἐπίγονος) for Σμίνθιος on a Rhodian amphora found in Athens (*cf.* Dumont, *Inscr. céram.* p. 92) and again (Μένων) Σμίθιος on another Rhodian amphora from Olbia and dating from the third or fourth century B.C.; also Σμίθων (= Σμίνθων) on a Melian inscription *I.G.A.* 413. Further Stephanus Byz. gives us the two forms αἴγιθος and αἴγινθος: the former is found in Arist. *H.A.* ix. 1, and Callim. *fr.* 321, and the latter in Oppian *Ixent.* i. 10; iii. 11 and is suggested as an emendation in *Antig. Caryst.* ii.

As further examples of the undefined pronunciation of the nasal we may add Σφίξ for Σφίγξ *C.I.G.* 8139, Κοσταντῖνος *C.I.G.* 9025 and Κωσταντῖος by the side of the more usual form Κωνσταντῖνος; in this last word this omission of ν is due to the Latin pronunciation of Costantius, Costantini &c. (*v.* Seelmann, *Aussprache d. Lat.* pp. 283-4). In Modern Greek it is also dropped in some dialects between vowels, as Lokr. ἐκεῖος = ἐκεῖνος, καέας = κανέας; at the beginning of words, Ἀξία=Νάξος, Ἔπαχτος = Ναύπακτος and constantly at the end of words as τὴ κόρη = τὴν κόρην.

It appears then that the nasals still retain the tendency to disappear before a following consonant which they had in the ancient language—it is not clear to us why Blass says their omission before χ φ θ in Modern Greek is due to a special tendency because, as the examples we have collected show, they are omitted before other consonants as well and always have been more or less so from almost the earliest historical times. Hence since the nasal is omitted in Ancient and Modern Greek

alike before tenues, mediae and χ φ θ, though the examples of its omission in Ancient Greek that we can collect from inscriptions, vases, &c., must necessarily be very few compared with the numbers in Modern Greek to be gathered from the lips of any uneducated living Greek, we hold that its omission before χ φ θ in the popular language of to-day is not a new phonetic departure and cannot therefore be used as evidence of a change having taken place in the pronunciation of χ φ θ since the classical period. On the contrary, it seems rather to point to the similarity of the pronunciation of χ φ θ in classical and modern times. Psichari goes so far as to say that "if the date of the first instance of the omission of ν before χ φ or θ can be ascertained, that will be the date of the transition of χ φ θ from aspirates to spirants," so that according to him the *νύφη* or *ἀφί* on Attic vases of sixth or fifth century B.C., the *τυχάνοι* on the papyrus of Artemisium, or the *Σμίθιος* on the Rhodian vases would conclusively prove that in these dialects at least χ φ θ had already become spirants.

However, without going so far as that, it may at any rate be justly maintained that, even if on the one hand the omission of the nasal before χ φ θ which prevails both in Ancient and Modern Greek is of no value to prove the spirantic nature of χ φ θ in ancient times, it cannot on the other hand be used to prove the aspiratic nature of these letters for ancient, and their spirantic for modern times. One and the same fact cannot be taken to prove two directly opposite things. Perhaps this fact cannot help us at all, because as the nasal is omitted in Ancient Greek before a pure tenuis, *e.g.* the μ in *τύπανον*, it could probably be omitted before χ φ θ just as easily if they were "tenues + spiritus asper."

Lastly, a new phonetic law is said to be responsible for

the fact that a χ, φ or θ after ρ is *sometimes* changed into a tenuis in the modern language.

This change is, however, at present still the exception and by no means the rule, as it is only in very few words and then not in the ordinary Greek that this change ever occurs: Psichari (*cf. Mém. d. l. Soc. Ling. Paris.* vi. p. 304 ff.) says distinctly that forms like ὀρτώνω and ἔρκομαι are not common in Greece and not the rule even in Constantinople. Even ἦρτα and ἔρκομαι, which are perhaps the two such forms most frequently heard, are in continental Greece less common than ἦρθα and ἔρχομαι. In fact it would be more correct to speak of this change after ρ as an exception to the general persistence of ρφ, ρχ and ρθ, for in the majority of words they remain unchanged, *e.g.* in καρφίτσα, παρθένα (demotic for πάρθενος), ἀρθούνια, ἀρχίνω, &c. Further too, the λ before φθ is in popular Greek generally changed into ρ, which shows that the combination ρφ, ρθ is by no means disliked; thus ἀδελφός becomes ἀδερφός (never ἀδερπός), δέλφιν δέρφιν, and ἦλθα, ἔλθῃς &c. become ἦρθα, ἔρθῃς &c.; also κόρφος, which is popular for κόλπος, and κορφή contraction of κορυφή. The change of λ into ρ before θ and φ had begun in the middle ages, as in the poems before the fifteenth century we find ἦρθα, ἔρθῃς, &c., *passim*. This change, which is so frequent in mediæval and modern Greek, indeed entirely disproves the existence of a new phonetic law, according to which a spirant after ρ becomes a tenuis, as it proves that so far from the sounds ρφ, ρχ, ρθ being disliked, they are on the contrary rather favourite combinations.

We do not think, therefore, that any new phonetic laws have come into existence, but that the beginnings of laws

already visible in the ancient language have been developed so considerably that at first sight they appear to have changed the character of the language.

CHAPTER IX.

INTERCHANGE.

We will now see whether, allowing for natural modifications due to the lapse of centuries, the same interchanges of sound still occur as occurred in ancient times.

Beginning with *the interchange of aspirates with one another*, we find (*a*) a frequent substitution of *φ* for *θ* in *ancient* Greek in the Aeolic dialect. Thus we have *φιλόφειρος* (*Inscr. inédit.* Ussing No. 25) from Larissa, which, according to Meister, is for *φιλόθηρος*, while Ussing himself says it is for *φιλόχειρος*. On a Boeotian inscription of the fifth century B.C. we have *Φέταλος* (Meister, *Gr. Dial.* i. p. 204—211, Tan. 49); also *Φέτταλος* (*ib. Theb.* 28, 8) on one of the fourth century B.C. both for *Θετταλός* (*C.I.G.* 2430), while the regular *Θετταλόν* occurs (*ib. Thesp.* 27, 3). Similarly *Θεόφεστος* and *Θιόφεστος* (*C.I.G.* 3172, A. 42, B. 91) of the third century B.C., which Blass interprets as = *Θεόθεστος* (perhaps due to dissimilation).

We also have the Boeot. and Epir. *φεῶν*, and *φύοντες* for *θεῶν*, *θύοντες* (*v.* Cauer², pp. 174—5); and this spirantic sound of *θ* in Boeot. *θεός* Aristophanes (*Ach.* 905) has indicated by the un-Boeotian writing *σιός* (*cf.* Meister i. p. 260). Alcman has the Aeolicisms *φοίναις* (= *θοίναις*) *fr.* 24, B.³ *πολύφοινος* (= *πολύθοινος*) *fr.* 14 Bergk.

Homer, Pindar, Theocritus, Aristophanes, &c., have *φλᾶν* for *θλᾶν*, also *φλίβεται* for *θλίβεται* Homer and Theocr. xv. 76; these forms Curtius regards as ordinary Greek. Meister says that the Homeric and Pindaric *φήρ* and *φηρίον* are not to be identified with *θήρ* and *θηρίον*, they do not occur on Aeolic inscriptions. The grammarians reckoned these forms as Aeolic because they considered the old population of Thessaly was Aeolic, and *Φήρ* in Homer is only used as the name of a Thessalian tribe, and in Pindar of the Centaurs. On an old inscription from Naxos, we find *Δωροφέα* for *Δωροθέα* (*I.G.A.* 411).

In *modern* Greek the substitution of *φ* for *θ* is found in a few words when followed by a vowel, λ or *ν* (the last in these cases being changed to *μ*)—thus from Trebizond: *φλίβερος* (= *θλίβερος*), *φαλαμίδ* (= *θαλαμίδιον*); and in the ordinary language *ἀρίφνητος* (= *ἀναρίθμητος*), *στάφνη* (= *στάθμη*), *φηκάρι* (= *θηκάριον*) and *Θῆβαι* is called *Φῆβα* by the people of that district. (*b*) There are very few instances in *ancient* Greek of the substitution of *θ* for *φ*, and according to Meister no inscriptions give us such a substitution. Hesychius gives *ἑλαθρά* (= *ἑλαφρά*); also *ὀθρῦς* which, he says, the Cretans use as meaning a mountain, and which is probably a dialectical form of the original *ὀφρύς*, and there is the Cretan *θύλλα*, which may be for *φύλλα*, though Curtius says it is doubtful, and more doubtful is the identity of the *θ* and *φ* in *κορυθ-* and *κορυφή* respectively.

Similarly, in the *modern* language the substitution of *θ* for *φ* is seldom found. Thus there is *θλίκη*, a form for *φυλίκη*. This change is rare, however, except in the Tsakonian dialect, where it is frequent before vowels, *ρ* and λ: thus *ἀλοιθή* = *ἀλοιφή*, *νύθη* = *νύμφη*, *εὐμορθία* = *εὐμορφία*, and generally in this dialect *θι*, *θυ* = *φι*, *φυ* respectively; thus, *θίλε* = *φίλος*, *θύτε* = *φύτον*, *οὔθε*, = *ὄφις*. But, as Carl Foy says, no one would here wish

to recognize an Aeolian survival. Besides this dialect is very peculiar and distinctive from all other present Greek dialects.

This interchange of θ and ϕ can only be explained by a spirantic pronunciation of the two letters. Thus Roscher draws our attention to the substitution in England by children of *f* for *th*, thus *fumb* instead of th*umb*. There is another word, which, if we can consider the forms that occur in different editions authoritative, goes far to prove the spirantic pronunciation of θ and ϕ. This is the word $\digamma\hat{\omega}\nu\varsigma$ (*vid. Hermes* xxvii. p. 481) (thus written on an ancient Corinthian vase) which occurs in Aristotle's *Nat. Hist.* i. 18, p. 617, l. 9, and is written $\phi\hat{\omega}\nu\xi$ in some MSS., whilst in others a form $\theta\hat{\omega}\nu\xi$ is given (*vid.* Bekker's edition). Thus both θ and ϕ here stand for the original sound $\digamma$ or *baû*.

We see, then, that the interchange of θ and ϕ as exemplified in the ancient dialects and the modern language correspond very closely, and we have no reason to think that the cause of such an interchange was not the same in both cases, or, in other words, to suppose that the pronunciation of sounds treated in the same manner at both periods of the language was radically different at the one time from what it is at the other.

(*a*) θ became χ in *ancient* Greek in the Doric dialect, thus we have: $\check{\epsilon}\xi\epsilon\chi\alpha = \check{\epsilon}\xi\omega\theta\epsilon\nu$, $\grave{\epsilon}\xi\epsilon\acute{\upsilon}\chi\omega = \grave{\epsilon}\xi\acute{\epsilon}\lambda\theta\omega$, $\check{\iota}\chi\mu\alpha = \check{\iota}\theta\mu\alpha$ (*vid.* Hesychius). $\check{\iota}\chi\mu\alpha\tau\alpha$, $\check{\iota}\theta\mu\alpha\tau\alpha$ and $\check{\iota}\chi\nu\iota\alpha$ are *var. lects.* in *Il.* xiii. 71, and $\check{o}\rho\nu\iota\chi\varsigma$ &c. for $\check{o}\rho\nu\iota\theta\varsigma$ &c. in Pindar and Theocr. We have also the Lesbian $\pi\lambda\acute{\eta}\chi\omega = \pi\lambda\acute{\eta}\theta\omega$ (*vid.* Cramer, *Anecdot. Oxon.* i. 149, 6).

Corresponding to this we have in the present Cappadocian dialect χ substituted for θ before and between vowels. [It will be seen that several of the above examples were instances of the θ between vowels being changed to χ.] Thus, for instance:

χεός = θεός, χέλω, χάλασσα = θέλω, θάλασσα, χανατώνω = θανατόω, χάβκω = θάβχω (vulg.) = θάπτω; and βάχος, στῆχος = βάθος, στῆθος, μεχῶ = μεθύω, κριχάριν = κλιθάριν = κριθή.

It is also interesting to notice that in some MSS. of the Septuagint θρόνου is found for χρόνου in Ps. 8, 46 and χήραν for θήραν in Ps. 131, 15.

Neither in the ancient nor the modern language do there seem to be any instances of (*b*) χ being changed into θ.

Of (*a*) φ being changed into χ we have from the *ancient* language the word ἀρχιδαυχναφορείσας found on some Thessalian inscriptions for ἀρχιδαφνηφορήσας, in which δαύχνα consequently stands for δάφνη; of these two forms Curtius opines that δαύχνα the Aeolic form was probably the earlier.

Hesychius gives a form δαυχμόν (Hipponact. *fr.* 2) which he says is for δάφνινον; Meineke here reads παυδαύχνωτον and Bergk τοιόνδε δάφνης. Alcman also has δαυχνόφορον for δαφνήφορον *fr.* 19, B.

In *modern* Greek we have χτινόπωρο for φθινόπωρο, and Lesbian ἀφανόχτης for ἀφανόφτης, which is the same word as the ancient φανόπτης which occur in the Scholiast's explanation of Aristoph. *Eq.* 997.

(*b*) χ becomes φ in *ancient* Greek in the Lesbian αὔφην = αὐχήν, *cf.* Meister i. 120. In Theocr. xxx. 28 (*vide* Paley's edition) Fritzsche reads ἄμφην, another Aeolic form, which Salmasius restores to αὐχήν. We have πυρίφου = πυρίχου *C.I.A.* ii. 2609 in Attic. Hesychius mentions the form φλιαρός a by-form of χλιαρός in Herod., and this last word gives us a double indication of a spirantic pronunciation, if it can be rightly connected with the form λιαρός (*vide* Liddell and Scott). Prellwitz, however, does not admit this derivation but takes λιαρός to be derived from a different root, √slaivo. Hesychius

also gives *καφάζειν* and *καχ-*, *κωφεύειν* and *κωχ-*, in which, according to Curtius, *χ* is the earlier.

In the contemporary language we find *χ* changed to *φ* after *γλ*, thus *λείχω* = *γλείφω*; *βλήχων* and *γλήχων* = *γληφωνάκι*; whilst in Calabrian *χτ* (= *κτ*) becomes *φτ*, thus: *νύφτα*, *ὀφτώ*, *ἀνοιφτό* for *νύχτα* (= *νύκτα*) etc.; and in the same dialect *χν* = *φν*.

We see then that the mutual interchange of aspirates is not frequent, either in Ancient or Modern Greek, but, such as it is, the mere fact of its existence in several different dialects (*e.g.* Aeolic, Doric, Cretan) proves that the aspirates interchanged in the respective dialects had in these a spirantic pronunciation.

To pass on to *the interchange of Aspirates and Mediae.* (*a*) Beginning with *δ* for *θ*, we find that in the *ancient* language the Macedonian *δάνον* = *θάνατος*; and *φιδάκνιον* is for *πιθάκνιον* on an Attic inscription of 330 B.C. (*C.I.A.* ii. 807, b 114, 117).

In the *modern* language this change is comparatively frequent in dialects. Thus we have the Cyprian *ἄδρωπος* = *ἄνθρωπος*; *ἀναδρῆκα* = *νάρθηξ*; the Locrian *Διοχάρης*, *Διόφιλος* = *θεοχάρης* and *θεόφιλος*, also *δυχατέρα*, which occurs in other districts as well. On Leukas, Thera, etc., we find the forms *Μάρδα* for *Μάρθα*, *Δόμοκο* for *Θαυμάκια* (a town in Thessaly) and *δειάφιον* for *θειάφιον* (Passow, *Carmina*).

(*b*) We find several instances of *θ* for *δ* in *ancient* Greek. Thus, *θάσος* = *δάσος* (Steph. *Thes.*); in the word *Θυφαιθίδης* (*cf.* Meisterhans § 39) we have an Attic form dating from the sixth century B.C. of *Τυφαιδίδης*. On another inscription of 373 B.C. *οὐθ' οἵ* = *οὐδ' οἵ* in Attica (*cf. ib.*); and probably *ὅθ' Ἑρμῆς* = *ὅδ' Ἑρμῆς* (*C.I.G.* i. 12), also *οὐθὲν* = *οὐδέν*; similarly in New Attic forms we frequently have *θ* for *δ* in *οὐθείς*, *μηθέν*, &c., for which the feminine is always *οὐδεμία*, *μηδεμία*, never *οὐτεμία*, *μητεμία*, but all these cannot perhaps

be taken as true examples of interchange, as the θ is here due to the following "spiritus asper," *v.* Brugmann, *Greek Grammar*, p. 52. It is worth noticing also that in some MSS. of the New Testament we find ἐξουθενῶ (= ἐξουδενῶ), *cf.* St. Luke xxiii. 11 and Rom. xiv. 10.

There do not seem to be any instances of θ for δ in the contemporary language.

In the *ancient* language (*a*) φ became β in the Macedonian dialects, thus we get Βίλιππος (=Φίλιππος), *cf. Etym. Magn.* 179 : Βερενίκη, Βρύγες, κεβαλή, ἀβροῦτες (=ὀφρῦς), βαλακρός (Diod. Sic. xvii. 55). In the *modern* language there is ἀλείβω for ἀλείφω and the Cyprian βλόμος (=φλόμος) and βράκτη (=φράκτη).

In the *ancient* language the only instance of (*b*) β becoming φ appears to be in the word Βαλιός (the name of Achilles' horse in Homer) = "bright," "gleaming," of which a by-form Φαλιός, explained by Hesychius as being the same as Βαλιός, is found on ancient vases (*e.g.* O. Benndorf, *Wien. Vorlegc. Blätt.* 1888, Taf. vi. 3*a*) and (Gerhard. *Etrusk. Vasenbild.* xii. p. 17), and this form is also found in Callim. *fr.* 176, compare also Thuc. i. 24, and φαλαρός in Theocr. v. 103, viii. 27. Prellwitz does not connect these words. In the *modern* language the only instance of this interchange seems to be φλήσκουνι = βλήχουνι = βλήχων, of which we have the Ionic form γλήχων in Theocr. v. 56.

In *ancient* Greek (*a*) we have no instances of χ becoming γ.

In the *modern* language only sporadically in dialects χ becomes γ, thus γρουσός = χρυσός, Cypriot γρουσάφιν, γρόνος = χρόνος. In Tsakonian this change takes place between vowels, *e.g.* ἀνέγου = ἀνέχω.

In *ancient* Greek (*b*) γ becomes χ, *e.g.* in πρῆχμα for πρᾶγμα (*I.G.A.* 381*b* 17) fifth century B.C. on an inscription from Chios;

also from Attica of first century A.D. (?) *πρήχματος* (*C.I.A.* iii. 3822, 4); *παράδειχμα* (*Ephem. Arch.* 1886, p. 166, l. 251) second century B.C.

In the *modern* language γ becomes χ only in Cypriot *παιχνίδι*, and the Locrian *δυχατέρα* for *θυγατέρα*.

We see then that there are but few instances of interchange in either the ancient or the modern stage of the language between the aspirates and the *mediae*.

We next come to *the interchange between the aspirates and the tenues*. (*a*) For θ becoming τ in *ancient* Greek. Hesychius gives the change before ρ, thus *τρόνα*, for which we have *θρόνα* (=flowers) in *Il.* 22. 441, only given by Hesych., *τρυγονᾶν*, = to tap at the door, a *var. lect.* for *θρυγονᾶν* Ar. *Eccl.* 34, and *τρίναξ*, a by-form of *θρίναξ* which is found in *Anth.* vi. 104, 6, *cf.* also Hom. Θρινακίη and later Τρινακρία.

In Elean we have *ἐνταῦτα* for *ἐνταῦθα*, whilst the Ionic form is *ἐνθαῦτα*. Old and New Ionic give us *αὖτις* and *αὖθις*, of which two forms, according to Curtius, the priority cannot be determined.

Athenaeus has Χυτνία for Κυθνία. There is besides the *regular* change of θ to τ after σ in Locrian, and sporadically in Boeotian and Phokian, also in Elean, thus: *τιμώστων* (*τιμάσθων*), *κελοίσταν* (*-σθην*), *λυσάστω* (*-σθω*) from Elis [Roehl, *I.G.A.* 117, 119, 121]: *θῳέστω*, *ἑλέσται* [*I.G.A.* Oeanthea 322], the Attic *κιθαριζέστω* [*C.I.A.* iii. 74, 3], *ἀποπολιτεύσασται—παραγενέσσται Bull. de Corr. hell.* v. p. 398, the Attic forms Ἐπιστένου and Λακιστένου, and the Aeolic *ἐστός*, *μαστός*, *κίστος*, *κίσταρος*.

From Attic inscriptions we may give as instances of this change *εὐτυμία C.I.G.* 708; on a vase Βάτυλλος (*ib.* 8439) *κατιστᾶσιν* Rang. i. p. 62 and from monuments of other

dialects τὸν τεόν (= τὸν θεόν) *C.I.G.* 3993; ἐντάδε (*ib.* 1988*c*); Ἀτάμας = Ἀθάμας on a Mysian coin, and many others.

In the *modern* language we find λεύτερος for ἐλεύθερος in the Peloponnese, τέλω for θέλω in Asia Minor. Between vowels, corresponding to the ancient Ionic αὖτις, we get the form εὐτύς for εὐθύς. Again like in ancient Greek, θ is changed to τ after σ, *e.g.* μιστός, αἰστάνομαι, ἀστενής. The change is frequent after φ and χ, giving the combinations φτ and χτ; of the latter we have already (p. 57) given one probable instance from ancient Greek; it is comparatively rare after ρ, *e.g.* ἦρτα = ἦρθα = ἦλθα; ὀρτώνω = ὀρθώνω.

(*b*) τ becomes θ in *ancient* Greek, in Boeotian which has -νθι = -ντι = -σι for the termination of 3rd pers. plur., thus ἔχωνθι, ἀποδεδόανθι (= ἀποδεδώκασι).

From Attic vases and inscriptions, Καριθαῖος = Χαριταῖος *K.V.* 51; Θυφαιδίδης = Τυφαιδίδης *K.V.* 97 of sixth century B.C.; χιθών, κιθών = χιτών of second century B.C.; θρόφος = τρόφος *C.I.G.* 8139; Ἀριστόκραθες on a vase (*Lpzg. Schrft.* viii. p. 747) and Ἀνθίλοχος (*K.V.* 51) of sixth or fifth century B.C.; and others such as old Attic ἐνθαυθοῖ and ἀνεθέθη (*C.I.A.* iv. *b* 27), θεμισθοκλῆς (*ib.* ii. 864) of fourth century B.C.

From Cumae we have θυφλός (*I.G.A.* 524) and ἐθέθην (*ib.* 528); from other parts there are several cases of θ written for τ, *e.g.* θεύδοθος = θεύδοτος (*C.I.G.* 8518).

Plato (*Crat.* 406 A) gives the form Ληθώ, as one used by ξένοι for Λητώ. In Ionic we have βάθρακος for βάτραχος. We may also notice double forms as πλάτανος and πλάθανος; and the terminations -τρον and -θρον, -τρα and -θρα, -τλο- and -θλο-, -τλη and -θλη, which correspond to similar Idg. ones (*v.* Brugmann, *Grund.* ii. 115). In the *modern* language medial τ regularly becomes θ before vowels, *e.g.* χαρθίου = χαρτίου; also

μουθε = μήτε in the Cretan dialect. In Oinoe ἐκ γενεθῆς for ἐκ γενετῆς; and in Tsakonian σήθα = σῆτα. Other instances are: ἀθιβολή = ἀντιβολή, μεθαύριον, στραθιώτης and φωθία, which are sometimes used in the vernacular for the forms with τ; and θρέφω and θροφή are still said, and correspond exactly to the ancient θρόφος for τρόφος.

Passing on to the labial we find that (*a*) φ becomes π in *ancient* Greek in several instances apart from the combinations σφ, σπ.

Thus ἀμπέσαι is Laconian for ἀμφιέσαι; in Doric πάτνη = φάτνη, also ἀμπίθουρος and ἀμπιστατήρ.

The form ἀμπέχειν with its derivatives belongs to all dialects where the π is due to dissimilation. There are also the double forms ῥάπυς and ῥάφυς Curt. p. 502 and προοίμιον = φροίμιον, the latter form prevailing since Aeschylus.

There are hardly any instances of π for φ from inscriptions on vases. In Attic Πίλιπος, Δίπιλος, Νικόπιλε (*C.I.G.* 8076) are found on the same vase; Εὐπροσύνη (*cf.* Rosch.); Πανακλέους Rang. 1823; Μόπσος on a vase.

Corresponding to the ancient double forms, we have in the *modern* language ῥαπάνι and ῥεπάνι for ῥάφανος. There do not seem to be many other instances of the change of φ into π, but we get πάπλωμα for ἐφάπλωμα, and ἀσταπίδες for ἀσταφίδες.

(*b*) The change of π into φ is likewise not at all frequent. In Attic of the 4th and 5th century B.C. φαρθένος (*C.I.A.* iv. *b.* 373); Φερσεφόνη and Διοφείθης (*ib.* ii. 835 *c.*) from an inscription of 320 B.C.

Φίττακος occurs for Πίττακος on a Mitylenian coin (*cf.* Mionnet, *Suppl.* vi. 64 no. 82). There is also the Arcadian (*cf.* Coll. 1181) and Delphic θελφούσιος (W. and F. *Inscr. de Delph.* 464, 5) which on coins is θελπούσιος.

In Doric and other dialects *ἐφιορκέω* occurs for *ἐπιορκέω*, in Locrian *φρίν* = *πρίν*, *γρῖπος*, probably the original form, = *γρῖφος* (Curt. p. 354), and the Attic *φιδάκνη* = *πιθάκνη*. Strabo vii. 315 gives *Πάρος* as the older form of *Φάρος*; and the Attic *φανός* has also a by-form *πανός*, which occurs in Aesch. *Agam.* 280 &c. and is the older according to Phot. *Lex.* As before we must here also note the double forms in *σπ* and *σφ*, the former being more Ionic and the latter predominating in Attic.

We find this change in the vernacular of the *modern* language, in which such forms as *φοῦχτα* = *πύκτη*, *φελεκούδια* = *πελεκούδια*, *φλεμμόνι* = *πλευμόνιον*, *κόρφος* = *κόλπος* occur. Also in the double forms similar to the ancient, thus *σφουντύλι* = *σπόνδυλος*, &c. It is very frequent in the combination *φτ* = *πτ*, thus *βαφτίζω*, *φτύω*, *φτωχός*, *λεφτοκάρυον*, &c. There is an Epirotic form *ἀφικράζομαι* (it has no corresponding ancient form) = listen, *cf.* Foy, p. 31; and the Tsakonian *ἀφόκιουρι* = *ἀπότυρον*.

There is more frequen tinterchange in both the ancient and modern stages between the guttural aspirates and *tenues* than between the dental and labial. In the *ancient* language, (*a*) *χ* becomes *κ* in the Doric *βρυκηθμός* (Hesych.); in *κιτών* *cf.* Meisterhans § 38 and *κύτρα*, probably only a Siceliot solecism, as Epicharmus has *χύτρα* (*vid.* Ahrens ii. p. 82).

On Doric inscriptions the form *δέκομαι*, which is also Lesbian and Ionic, and is used by Sappho and frequently by Pindar, occurs for the Attic *δέχομαι*. In Old Attic we have *ῥέγκω* for the Ionic *ῥέγχω* (Curt. p. 242); *κνός* for *χνός*. New Attic also sometimes had *κ* for *χ*, *e.g.* *μοῦκορ* = *μῦχος*; Curtius gives *ἄρακος* a late form for *ἄραχος*. In New Ionic (*e.g.* Herodotus) *οὐκί* = *οὐχί*, *βάθρακος* = *βάτραχος*; *κυθρός* and *κυτρός* for *χυτρός*.

From errors on inscriptions and vases we get very many instances of κ for χ from all dialects. A few examples are: from Attic, Εὔκειρος, Καριθαῖος, καλκοῦν, κιθών and κιτών (Meisterhans § 38), from Aeolic κοραγίαν, ὑπαρκοίσαις (*C.I.G.* 3524, 40), Νεικομακίδα. On the Gortynian inscription we find, according to G. Meyer, owing to the absence of a special sign for χ, the form κρέματα = χρήματα, ἐ(πικ)ορέν and ἀνκορέν = ἐπιχωρεῖν and ἀναχωρεῖν.

This change of χ into κ occurred frequently after σ, whence we get σκ for σχ, *e.g.* σκελίς Attic σχελίς, &c., πάσκοι for πάσχοι (Roehl, *I.G.A.* 112) from Elis.

In the *modern* language this change is also sporadically found in the dialects, thus we find ἔκω for ἔχω, στοκάζομαι, both these occurring in Rhodes; whilst in Cypriot we get ὀκτρός for ἐχθρός, ἔρκομαι for ἔρχομαι, &c. The forms δέκομαι and καυκῶμαι occur in the Cretan dialect.

Again, as in the ancient language, there are the double forms in σχ and σκ, both in the medieval and modern language, thus σκάρα = ἐσχάρα, &c. Ptochoprodromos has μονοκύθριν for μονοχύτριν, and also the two forms βάθρακος (iv. 99) and βάτραχος (iv. 409), which thus correspond exactly to the ancient Ionic and Attic forms.

We find (*b*) κ becomes χ in the *ancient* language sometimes before τ; and thus we have the forms ταχτᾶ (= τακτῇ or ταχθῇ) Elis, Roehl *I.G.A.* 113, c. 12, κατέχτανεν Sagalassus in Pisidia, *C.I.G.* 4377, 5, εὔταχτος (Roscher 81, 20); ἐχ τῶν Chios, *C.I.G.* 2241. We have also numerous instances of χ written for κ in other cases. From Attic, for instance, θυηχόος (*C.I.G.* 160, 7), Χόλχος = Κόλχος, and Χαχρυλίων = Καχρυλίων on vases of sixth and fifth century B.C. (*cf.* Meisterhans § 38); also Ἀσχλαπίος &c. (*I.G.A.* 549) and forms like πάνδοχος for

those with original κ as πάνδοκος. Athenaeus has Χυτνία for Κυθνία. The grammarians give ἀτρεχής as Doric for ἀτρεκής, Pindar, Callimachus and Theocritus have the tenuis, though one reading for Theocr. ii. 151 is ἀτρεχές and is adopted by Ahrens.

In the *modern* language also κ becomes χ before τ, *e.g.* χτένι = κτείς, ἀδράχτι = ἄτρακτος, ἀνοιχτός = ἀνοικτός; ἐχ τηθῆς in Trebizond. We also get this change before vowels, thus χάφτω = κάπτω, ψιχαλίζει, χοχλιός; and before ν, *e.g.* δείχνω = δεικνύω, λιχνίζω = λικνίζω. Before π, *e.g.* ἐχπάγην = ἐκπάγην (ἐξεπάγην), ἀχπάνω = ἐκπηγαίνω, ἀχπαράσσω = ἐκσπαράσσω in Trebizond only.

These modern words in which κ becomes χ before ν may well be compared with parallel forms in ancient Greek where the aspiration is considered to be due to the influence of a fol lowing liquid or nasal, *e.g.* λύχνος from √λυκ.

πλοχμός „ √πλεκ.

βληχρός „ √βλακ.

From the preceding pages we see that aspirates interchange but seldom with mediae either in the ancient or modern language, γ and χ hardly ever in either, φ and β do so in one dialect in each, and θ and δ do so in Attic, occasionally in Ancient, and in one or two dialects in Modern Greek—to sum up, the interchange of aspirates and mediae is rare, but the instances we have of this interchange are about equal in number in Ancient and Modern Greek.

Then proceeding to the interchange of aspirates and tenues (if we leave out of consideration for the minute the combinations σφ, σθ and σχ, on which so much stress is laid by those who maintain that χ φ θ were still real aspirates in classical times), we see that θ and τ interchange as much now as then,

and mostly in the dialects, whereas χ and κ did so very frequently both in Attic and in the dialects, and still do so, and φ and π very seldom, but equally often in ancient and modern.

This interchange is extremely difficult to explain, especially as it still is of constant occurrence in Greece where χ φ θ are now, and have been for many centuries, distinct spirants. The interchange that is by far the easiest of explanation is that of κ and χ—the Greek spirant χ is very difficult to pronounce, and as most foreigners, even Germans, find it impossible to manage, and say κ instead, it is not hard to imagine that the people of some districts, *e.g.* Rhodes, find the same difficulty, and therefore regularly say κ instead of χ, and that this peculiarity has in a few instances crept into general use. Similarly in Ancient Greek, whether χ was an aspirate or a spirant, its frequent interchange with κ seems fairly easy to understand.

T and θ interchanged freely in the ancient language, but not more freely than they do in the modern, and the ancient forms with θ for τ can be paralleled by similar modern ones: thus for Attic θρόφος we have the common modern forms θρέφω and θροφή and for Attic χιθών the modern φωθία for φωτία and for Ionic αὖτις the modern εὐτύς; and modern βάθρακος like ancient Ionic βάθρακος. So too for the interchanges of π and φ the ancient and modern languages furnish a fairly equal number of examples, *e.g.* like Attic παρθένος and φαρθένος we have modern ῥάπανος and ῥάφανος, φοῦχτα and πύκτη and others.

If we then collect and weigh this evidence which proves that, though now assuredly spirants, the interchange between χ φ θ and their corresponding tenues still prevails, is it just to maintain that because these interchanges were so frequent in

Ancient Greek, the explosive element in $\chi\,\phi\,\theta$ must have still been distinctly audible, when, on the other hand, we find that these interchanges still continue and yet know that the explosive element is not heard in the present spirantic $\chi\,\phi\,\theta$; and corresponding forms with tenuis or spirant, such as $\tilde{\eta}\rho\tau\alpha$ or $\tilde{\eta}\rho\theta\alpha$ (for $\tilde{\eta}\lambda\theta\alpha$), are constantly met with and cause not the slightest difficulty?

The question of course is, whether these forms with a tenuis are a remnant from olden times when $\chi\,\phi\,\theta$ were pronounced as true aspirates, or whether this interchange, still existent, could have been possible from the beginning even if $\chi\,\phi\,\theta$ had always been spirants. Or there is another solution which is held by some, and that is, that two pronunciations of $\chi\,\phi\,\theta$ existed side by side in classical times—namely, that in some dialects they were as now spirants, and in others, in Ionic for example, real aspirates or, if not wholly and in all cases aspirates, yet generally so. In Ionic these aspirates constantly became tenues by the dropping of the aspirate, and in elisions the final tenuis when followed by a rough breathing, which in Ionic was hardly used, remained a tenuis.

A survival of this aspiratic pronunciation is found in θ being pronounced as τ by the present Asiatic Greeks, *e.g.* $\tau\acute{\epsilon}\lambda\omega$ for $\theta\acute{\epsilon}\lambda\omega$. And we may perhaps go further and admit that in other dialects they were aspirates before or after certain letters, which is shown by their being frequently replaced by the corresponding tenuis in such cases—in Elean, Boeotian and Lokrian θ may have been $= t + h$ after σ, as in these dialects $\sigma\tau$ is generally found for $\sigma\theta$; so too in Crete the aspiratic pronunciation of θ was probably retained before ρ and ν, as shown by the writings $\tau\rho$, $\tau\nu$, though in other cases θ was in this dialect a spirant already before the fifth century B.C. (*v.* Meister ii. p. 54).

As parallel to such a double co-existent pronunciation, we

may perhaps adduce the English *s*, which as a rule is pronounced as a hard sibilant but in Somersetshire and Dorsetshire as a soft one, equivalent to *z*.

The interchange of tenuis with $\chi\,\phi\,\theta$ is so frequent in Modern Greek that it seems to entirely weaken the force of the argument urged by Curtius, Meisterhans, &c., that this interchange proves aspiratic pronunciation for the classical period. Because if we view this fact as an isolated one (apart from all other considerations which seem to point to $\chi\,\phi\,\theta$ being real aspirates), then "per se" can it be adduced to prove that $\chi\,\phi\,\theta$ were aspirates, seeing that exactly the same interchange is found in the present language where $\chi\,\phi\,\theta$ are pure spirants? Why should, or rather how can, one and the same fact be taken to prove a certain thing in one instance which in another instance it cannot prove? If the forms in the *modern* language which have a tenuis in place of aspirate are to be taken as survivals from a period when $\chi\,\phi\,\theta$ were $= k + h$ &c. and hence easily convertible into tenues, we can say the same of similar classical forms, namely that they do not by any means prove aspiratic pronunciation of $\chi\,\phi\,\theta$ for *that* period, but are probably survivals of a period from 1000—2000 years anterior to the classical.

Before we pass on to the interchange of aspirates with sibilants, we must say a few words about the few ancient examples of two consecutive aspirates being written for two consecutive tenues and which Curtius and G. Meyer take with the other interchanges of aspirates and tenues as evidence of the aspiratic nature of $\chi\,\phi\,\theta$. From inscriptions we get Ἔχθωρ (= Ἔκτωρ) *C.I.G.* 7673 on a vase, and ἐχθός (= ἐκτός) *I.G.A.* 322*b*. 2 from Epidauros, and in Theocritus ii. 62 and vii. 127 the form ἐπιφθύζω occurs for ἐπιπτύω.

This last word has an exact parallel in the modern Cretan *φθύω* for *πτύω* and the vernacular *φθέρνα* for *πτέρνα*, and all three have parallels in words from the poems of the middle ages, such as *κρατιχθηκήν* for *κρατηκτικήν* from Georgillas *fl.* 1490 A.D. and *φθωχολογία* (p. 54), *ξιφθερογυρευτάδες* (p. 113), *χρυσοφθερουγοφόρε* and *φράχθη* from Wagner's *Carmina Medii Aevi*. The similarity of formation alone is a strong argument for a similarity of pronunciation of the letters in question, and it is heightened by the extreme unlikelihood of *Ἕκτορ* being written *Ἔχθορ* if it was to be spoken as *Ἔκτ-hορ*. The double aspirates seem the chief stumbling-block to the aspirate theory of *χ φ θ*, because it is more than difficult to imagine that if *φθ*, *χθ*, *θθ* were merely *written* through analogy to *γβ*, *κπ*, *πτ*, &c., but pronounced differently with the first aspirate a tenuis, we should not have countless errors on less carefully written inscriptions, such as vases, instead of only two or three *e.g. ἄπθιτον* and *καταπθιμένης*, neither of which is Attic by the way. And, as we have noticed in an earlier chapter, this juxtaposition of two aspirates is in the most direct variance with the rules for the aspirates of the Indic language, so that the discovery of forms in the ancient language which have their exact counterparts in the language when *χ φ θ* had beyond all dispute become spirants, tends strongly to convince us that already in classical times these letters were spirants.

It remains therefore to notice the interchange of the aspirates with other letters.

We will speak first of the interchanges of *θ* and *σ*.

(*α*) *θ* becomes *σ* chiefly in the Laconian dialect, for the stricter Dorians, as Merry and the old grammarians say, preserved the *θ* whilst the Laconians changed it into *σ*. Opinions differ as to the time when this change began. Ahrens places

it as early as Alcman's time, and Blass apparently agrees with him; G. Meyer thinks this is decidedly too early: he also gives as his opinion that the σ in our copies of the *Lysistrata* and Thucydides has been interpolated by later copyists; Merry, on the contrary, takes the words of the Spartan herald as given in the *Lysistrata* 980 ff. as a specimen of the strict Laconian dialect. In these lines we have: Ἀσανᾶν = Ἀθηνῶν, μυσίξαι = μυθίσαι, σιώ = θεώ, ὀρσά = ὀρθά, ἀγασός = ἀγαθός, and others.

In Thucyd. v. 77 τῶ σιῶ τοῦ σύματος is Laconian for τῷ θεῷ τοῦ θύματος, and in Arist. *Eth. Nic.* vii. 1 σεῖος ἀνήρ for θεῖος ἀνήρ. The old grammarians and Hesychius instance many other Laconian words written with an σ for θ, such as κάσσει for κάθες, πίσορ for πίθος, &c. In our fragments of Alcman we have σαλασσομέδοισαν, σάλλει, ἔσηκε, &c., but we also have θίασος, παρθενικαί, ἄνθος, θεοῖσιν, &c.

On Laconian inscriptions σ is only found for θ on those of late date, the earliest belonging to the second and first centuries B.C. and most of them to the time of the Roman emperors. Amongst them are Σείδεκτας and Σείπομπος of Hadrian's time *C.I.G.* 1241, Βωρσέα ἀνέσηκεν Cauer[2] 34 of post-Christian time, τὸν σίν (= θεόν) *ib.* 33, probably of first century B.C. (*v.* Meyer, *Greek Grammar* § 211); κὰς σηράτοριν (= κατὰ θηρατόριον) *ib.* 36, 37 of the time of M. Aurelius.

Blass says that the Laconian θ was "undoubtedly for a time at least the Modern Greek spirant: if it had been a real *s*, it would have been so written by the Laconians themselves, while it is quite natural that the Athenians should have represented the strange spirant by the allied sound σ." This does not sound very convincing, as dialectical peculiarities of speech are never, or rarely, reproduced in the orthography of those

born and bred to that dialect, but only by those who, for literary or other purposes, try to reproduce this peculiar pronunciation in writing. The Laconians may have spoken σ for spirant θ for a very long time before they themselves began to write it as σ, and Athenians of the time of Aristophanes would, if they pronounced θ correctly as a surd spirant (granting for the moment that it was one), naturally in order to render literally the peculiar pronunciation of the Laconians, write an σ wherever the Laconians spoke θ in that way.

The θ had therefore evidently become a spirant in Laconia at a very early date.

If we now turn to other dialects we find that θ becomes σ before μ sometimes in Attic, *e.g.* in ending *-σμο* for *-θμο* (*v.* Brugmann *Greek Grammar* § 70, 1), thus βασμός is by Phryn. called the Attic form of the Ionic βαθμός—this distinction may be incorrect, but anyhow θ and σ are interchangeable in this word. βασμός is found on a Mitylenian and a Lydian inscription (*v. C.I.G.* 2189 and 3486), ἀναβαθμός in Herod. ii. 125, καταβασμός Aesch. *Prom.* 817.

Similarly ἀνακλαυθμός and ἀνακλαυσμός Dion. H. vi. 46 ed. Reiske; ῥυθμός, Attic, *v.* Lobeck. *ad Phryn.* p. 324, and Ionic ῥυσμός Archil. *fr.* 66 (Bergk p. 701), also in Anac. 78; and Call. *Ep.* 44, 5. Παλάσιον for παλάθιον (*Pax* 574) and Τρικορύσιος for *-ρύθιος* (*Lys.* 1032) may perhaps be taken as indications of a spirantic pronunciation of θ in Attic. The Doric and Ionic ἐσλός = ἐσθλός (Pind. *Ol.* xii. 17). On an Elean inscription (Coll. 1172, 33) of probably the third century B.C. we have ποήασσαι = ποιήσασθαι.

Then again there is (*b*) the case of σ becoming θ. The Rhodians, according to Strabo (xiii. p. 912), said ἐρυθίβη for ἐρυσίβη; in North Ionic δυθμάς stands for δυσμάς in Callim.

H. ad Cer. l. 10 ed. Meineke; and on the Gortynian inscription *θθ* or *θ* is written for *σθ*, *e.g.* *χρήθθαι*, *ἀποδόθαι*.

All these cases of interchange between *θ* and *σ* point strongly to a spirantic pronunciation of the former.

In the *modern* language there seem to be no cases of (*b*), that is of *σ* becoming *θ*.

Of (*a*), that is, of *θ* becoming *σ*, there are many examples to be taken from Locrian and Tsakonian. Thus in Locrian *σλίγω* = *θλίβω*, and *σαλαμούρα* is a corrupt form of *θόλωμα*. In Tsakonian *σέρι* = *θέρος*, *σερίντου* = *θερίζω*, *σῖνα* = *θίς*, *σάτη* = *θυγάτηρ*, *κρισά* = *κριθή*, &c; especially to be remarked are *σόμο*, *cf.* Laconian *σερμοί*, = *θερμοί*; *κασημένοι* = *καθημένοι*, *cf.* Hesych. *κάσσει* (Lacon.): thus we have in Tsakonian, which is probably the direct descendant of Laconian, the survival of the ancient Laconian pronunciation of *θ* as *σ*.

In the contemporary language we see that *χ*, as well as *θ*, becomes *σ* occasionally. In Cypriot this change is very general, thus, *σέρι* = *χέρι*, *σείλη*, *σήρα*, *σοῖρος*, &c., for *χείλη*, *χήρα*, *χοῖρος*. A similar pronunciation prevails in Amorgos, Kalymnos and Astypaleia, *e.g.* *ἔσει* = *ἔχει*, *ἐξοσή* = *ἐξοχή*, &c. Likewise in Samothrace and in the Pontic dialects, *e.g.* Trebizond, there are the forms *σαίρομαι* = *χαίρομαι*, *σελιδών* = *χελιδών*, &c. In Calabria *σειμῶνα* = *χειμών*, *σεῖρο* = *χεῖρον*; in Macedonian *σοινίκη* = *χοῖνιξ* (also in Pontic we have *χοίνικον* and *σοίνικον*, and in Tsakonian *χοίνικα*).

We do not know of any extant instances of this change in the ancient language.

CHAPTER X.

ELISIONS AND THE SPIRITUS ASPER.

THIS subject has such an important bearing on the probable pronunciation of χ φ θ in the various dialects that we must first briefly review the different ways in which it is treated in them (our limited space will not allow of our entering into full details), and then see what conclusions are to be drawn therefrom as to the nature of χ φ θ.

In Attic, both old and new, the rule is that the final tenuis of a word is changed into its corresponding aspirate before an initial "spiritus asper," *e.g.* *καθ' ἡμέραν, ὑφ' ἑνός*.

And this rule is never (except for a few exceptions on *C.I.A.* i. 324, which is generally acknowledged to be the work of an Ionian) transgressed on any inscription before the Christian era, in spite of the fluctuating use of the spiritus asper which is often omitted, when initial, on the older inscriptions and has no sign to represent it at all after the formal adoption of the Ionic alphabet.

The orthography which corresponds exactly to the pronunciation is that of words like *ἐφίημι* and that of those inscriptions where the initial spiritus asper is not written after the aspirate, *e.g.* *καθά C.I.A.* iv. 61 a. 26. Writings like *καθἁπερ* on same inscription, and *ἀφ' οὗ, ἀφ' ἵππου* of the Alexandrian grammarians are incorrect, though the latter may, if φ had already become a spirant in their time, be explained by their not knowing that after a spirant the rough breathing ought, as after an aspirate, not to be pronounced.

In *Asiatic Ionian*, where the rough breathing was lacking, we have complete psilosis on the inscriptions except for a few

cases like *μεθέλῃ* B. 174 a, *καθημένου ib.* 156, *κάθοδον ib.* 238, found on inscriptions of the 4th or 5th century B.C., which are probably old compounds in which the *θ* has persisted, and for others like *καθάπερ* B. 147, 151, *καθιστάμενος* B. 158 (with *ἀπήγησιν*) which are probably due to Hellenistic influence.

In *Asiatic Aeolian* we have no inscription from the time when the sign of the "spiritus asper" was still in use which has instances of elision or crasis, and on all the others there is psilosis, and the same applies to the evidence from MSS. Meister considers that Bergk rightly rejects as incorrect the signs of aspiration in the fragments of the Lesbian poets (Sappho, Alcman); of Alcman more hereafter.

Exceptions to this rule occur on inscriptions from the time of Alexander onwards, *e.g. ἀφικόμενος* Coll. 281, 15, *καθά ib.* 311, 9, *ἐφ' ἅν, ἐφ' οἷσιν ib.* 311 must again be 'old compounds' or due to Hellenistic influence.

In *Boeotian*, aspiration of the tenuis is regularly observed, *e.g. ποθείλετο* Coll. 488, 122.

In the dialects of *N. W. Greece, e.g.* Phokian, Aetolian, aspiration of the tenuis is generally observed except in *Lokrian* where the tenuis is never aspirated in cases of elision and crasis on the older inscriptions, but only on two of later date (Coll. 1502 and 1508).

In *Elean*, psilosis obtains except for a few instances similar to, and probably due to, the same causes as those noticed under Ionian and Aeolian.

In *Doric*, which must be subdivided, we find

(*a*) in *Laconian*, aspiration of the tenues on inscriptions is the rule, *e.g. ποθ' ἁμέ* Newton ii. 143, *καθ' ἃ C.I.G.* 1346; *κατ' ἰδίαν* and *καθ' ἰδίαν* represent two different forms of *ἴδιος*.

Apart from the inscriptions, Apollonius testifies that in Doric poets, among whom Alcman is evidently to be included, the

tenuis in elision and crasis is constantly not altered before the spiritus asper, *e.g.* κώ τοξότας κάλλιστ' ὑπαυλέν (*v.* Blass, p. 112), and of the fragments he gives Bergk attributes some to Alcman. As there is great uncertainty not only as to what is Alcman's, but also as to the correct reading in the extant fragments (χὠπάραν *fr.* 76 seems certain), it is difficult to draw any definite inference with regard to the treatment of the tenues in crasis and elision. Blass, in suggesting that the reason of this non-aspiration may be found in χ φ θ being in Laconian spirants already, seems entirely to leave out of account the inscriptions.

(*b*) in *Tarentum and Herakleia*, aspiration of the tenues takes place, so also in *Messenian* and *Corinthian* inscriptions.

(*c*) in *Rhodes* also, aspiration is regularly observed except in the word ἱερός, which is in this dialect written ἰερός, and in κατύπερθε *I.G.A.* 482 a.

(*d*) in *Crete* psilosis prevailed and on the *Gortynian* inscriptions the spiritus asper is never written, and τ is never changed into θ.

To sum up, in Attic, Boeotian, Rhodian, the Doric of Tarentum, Herakleia and perhaps Laconia, aspiration of the tenues in elision and crasis is roughly speaking uniformly observed, whereas it is neglected by the Asiatic Aeolians and Ionians, the Eleans and the Cretans.

In the latter set of countries the initial spiritus asper had been entirely lost before historic times, and consequently there was nothing to cause aspiration of a final tenuis.

The regular aspiration of tenues in Attica, &c., proves according to some the true aspiratic nature of χ φ θ. According to Von der Mühll, if there was any reason whatever for the orthography χ φ θ in elisions, it can only be found in the supposition that the pronunciation of χ φ θ was identical with that of the

respective tenuis + spiritus asper. For, if this did not represent the pronunciation of $\chi\,\phi\,\theta$, what led to the substitution in question ever being introduced?

On the other hand, if we suppose $\chi\,\phi\,\theta$ always to have been spirants in Greek, we must conceive that in the case of a tenuis followed by an initial spiritus asper the two coalesced into the one sound of a spirant.

It might be argued on the other side that the tenuis + spiritus asper must by the time of the introduction of ϕ and χ have already changed more or less from real aspirates, for otherwise how is it possible to explain that never once in Attica before the time of Eukleides whilst H still = *h*, nor in any other dialect, as for instance in Herculaneum where they had a special sign ⊦ for "h," do we find on an inscription of any kind *πh*, *κh*, or *τh* written in elisions, crases and compound words for ϕ, χ or θ (excepting of course the cases of Thera and Melos)?

On Attic inscriptions aspirates and tenues are freely interchanged, the "h" is often left out and sometimes wrongly inserted, we have mistakes in compounds and elisions, *e.g.* *ἀφέσταλκα*, *πεντορκίαν*, we even have *καθhάπερ* near *καθά C.I.A.* iv. 61 a 26, but nowhere have we any error such as *κατ' hεμέραν*, *κατhίστασι* or *ἀπhέσταλκα*, which, if $\phi = \pi + h$ &c., are just the very ones to be expected on the more inaccurate and earlier inscriptions. Similarly on the tables of Herakleia we consistently find *πόθοδος*, *ποθελόμενος*, &c., not once *ποτ⊦οδος*, or *ποτ⊦ελομενος*. Such mistakes as *ἀφέσταλκα* are plainly enough due to the stonemason's ignorance as to whether *έσταλκα* was aspirated or not, and is like the Mod. *μεθαύριον* for *μεταύριον*, *ἐφέτος* for *ἐπέτος*.

The writings *καθhάπερ*, *ἀφhοῦ* &c. are nonsense, if θ, ϕ of themselves sounded as $\tau + h$, $\pi + h$; but if they were spirants, the stonemason who knew by ear that *καθάπερ* not *κατάπερ*

was said, and further knew dimly that ἄπερ by itself was an aspirated word, thought he had better put in its "h," not understanding that its aspirate was absorbed by the spirant θ. At all events if χ φ θ were real aspirates, then we ought, if only in elisions, to have some instances of κh, πh, τh being written for them before the abolition of the sign of the spiritus asper, and, this not being the case, it is extremely difficult to believe that χ φ θ were still real aspirates at the time from which even our earliest Attic inscriptions date.

It is also maintained by some, *e.g.* Schütz, that the "spiritus asper" had disappeared in Attic by the fifth or fourth century B.C., and others admit that, although it was in their opinion still heard down to at least the beginning of the Christian era, it had a very weak sound. If this were so, are we not almost forced to believe that the tenuis and spiritus asper must have coalesced into one sound before the latter became considerably weakened, and certainly before it quite disappeared ?

Again, although the writing φ and χ for tenuis and spiritus asper could not possibly have come into use before the introduction of these signs, we are not in a position to state that the language was not ready for them before—the π + h and κ + h may have become affricatives or spirants some time before single signs were introduced to represent them.

In post-classical times there are an increasing number of exceptions to this rule of aspiration and these are either to be explained by χ φ θ now more and more approximating to spirants, and their consequently no longer correctly representing a tenuis + "spiritus asper," or by a general ignorance of orthography at a time when the initial "spiritus asper" was probably completely lost to the language, and further by some popular forms in which aspiration existed, though not

sanctioned by tradition, having come into general use, *e.g.* ἕτος for ἔτος.

As in modern Greek καθὼς, ἀφ' ὅτου (or vulg. ἀφόντα), ἀφήμι, καθημέραν are said, but ἀπ' ὅτι and ἀπ' ὅπου, because the former are stereotyped forms which have come down from antiquity, whereas the latter did not exist in the ancient language but have been formed in latter times when the spiritus asper was no longer spoken, so too in Attica and elsewhere in post-classical times we find non-aspiration of the tenues in uncommon elisions, whereas it is always retained in old forms and elisions which by their frequency had come to be regarded as almost one word.

Now if we turn to the dialects of Asia Minor, Elis, &c., we find psilosis, caused undoubtedly by the spiritus asper having disappeared in these dialects before it and the preceding final tenuis in compounds and elisions had had time to coalesce into one sound, and thus we get ἀπ' οὗ (for ἀφ' οὗ) *I.G.A.* 246, τἤρηι (= τῇ Ἥρῃ) B. 211, &c.

But even in these dialects we get occasional examples of aspiration such as ἀφικόμενος Coll. 281, 15, καθιστάμενος, καθώρ, μεθέλῃ B. 174 a, καθεύδω, which correspond exactly to the traditional forms preserved in Medieval and Modern Greek and, like them, are to be explained as old compounds dating from a time when the spiritus asper still existed in these dialects and had grown so firmly into one sound with the preceding tenuis, that these forms were not affected by the loss of the spiritus asper—or they may be explained by Attic influence. The explanation of analogy does not seem a good one, as the examples occur in different places and times and on different inscriptions. Other exceptions there are too in these dialects, which, according to Meister, are due to Hellenistic influence.

The word *κατύπερθε* *I.G.A.* 482 on the Abu-Simbel inscription from Nubia, which is probably written by a Rhodian, is noticeable for the non-aspiration of the τ, because on the same inscription the "h" is written elsewhere, *e.g.* ho, but not regularly by any means. It can be explained in two ways; either, if θ is supposed = τ + *h*, it was caused by dissimilation of the aspirates, or else θ was a spirant.

The Attic forms Ἀπηλιώτης *C.I.G.* 518 and Κράτιππος Coll. 1307 (*cf.* Ἀφηλιώτης *C.I.G.* 6180, 6181) cannot be taken as instances of the neglect of aspiration, for it must be remembered that no rule can be postulated for the erratic treatment of proper names. As regards Κράτιππος we find that the word ἵππος was regularly in all dialects deprived of its rough breathing when it formed the second member of a compound, thus we have Boeot. Ἄλκιππος, Delph. Κράτιππος, &c., which is explained by the aspirate in ἵππος not being Indo-Germ.; whilst ἥλιος when in composition was sometimes aspirated and sometimes not.

To conclude, in those dialects where regular aspiration of a final tenuis before a following "spiritus asper" takes place, it seems only natural to assume that the χ φ or θ in these elisions must have been true aspirates, but on deeper investigation we see that one argument against this conclusion is the fact that we have no errors on inscriptions of tenuis + "spiritus asper" being written instead of a χ φ or θ; and, secondly, that if the spiritus asper had grown so weak as no longer even to require a distinctive sign, it was probably no longer of sufficient force to retain its influence in every case over a preceding tenuis.

Conclusion.

Although in the course of the preceding pages we have from time to time drawn conclusions from the various arguments, it may be useful now to summarize.

In the first place it will be as well to say at once that we consider the question one that does not admit of any definite solution, because even the safest, viz. the internal evidence of the language itself, is both of an uncertain and a conflicting nature. This being so, we can, after carefully sifting the same, do nothing beyond forming a more or less certain hypothesis from estimating the value of the arguments on either side and trying to duly appreciate them. From such an estimate we obtain the following results.

In support of the aspiratic theory, we have the two analogical phonetic laws in Sanskrit and Greek, by which two consecutive syllables cannot begin with an aspirate, and a root may not begin and end with an aspirate. Add to this the *a priori* evidence found in the process of elision, and we have the main arguments for the aspiratic theory.

On the other hand, in support of the spirantic theory, we have the difference of phonetic law in Sanskrit and Greek, by which in the latter language we find combinations of aspirates. As regards internal evidence, with the exception of that furnished by elision, it would seem to favour this theory. That it does so, we have attempted to show in our investigation of the evolution of the phonetic laws and the history of interchange, which in our opinion seems to point to a continuity of pronunciation.

As to the testimony of the grammarians, we think we have

shown by our exposition that, if considered impartially and in its entirety, it cannot be looked upon as reliable evidence for either theory.

These are the broad conclusions at which we arrive, and we do not think they are such as to justify a final decision in favour of the two opposed theories which we have attempted to elucidate.

THE END.

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